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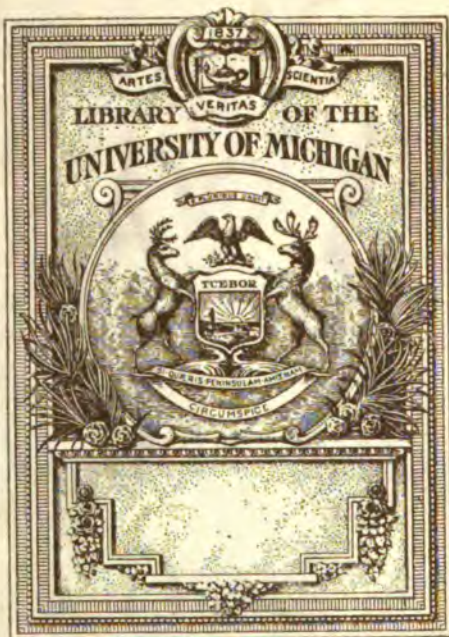
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THE ZOOLOGIST FOR 1850.

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THE
ZOOLOGIST:
A
POPULAR MISCELLANY
OF
NATURAL HISTORY.

CONDUCTED BY
EDWARD NEWMAN, F.L.S., Z.S., &c.

VOLUME THE EIGHTH.



LONDON:
JOHN VAN VOORST, PATERNOSTER ROW.

M.DCCC.L.

**"With wise intent
The hand of Nature on peculiar minds
Imprints a different bias, and to each
Decrees its province in the common toil."—AKENSIDE.**

P R E F A C E.

I AVAIL myself of the opportunity which an annual address affords of making a few remarks on the present state of our favorite study and pursuit. I have observed with sincere pleasure the progress which Natural History is making throughout the kingdom : many years have elapsed since I first made the hazardous attempt of rendering that science popular, without at the same time diminishing its value as a structure built with truths : it seemed to be my mission, so to speak, to strip this study of its uncouth and tiresome technicalities without departing one jot or tittle from a rigid adherence to fact. When I conceived this idea our shelves were not so much encumbered with abstruse technicalities as they were weighed down by unsound, untrue, and therefore worthless compilations, in which everything was sacrificed to a popular style designed exclusively to secure extensive sale. I will not however entirely condemn such publications : although this cheap and easy reading was totally unworthy of trust ; and if studied with attention would certainly promote ignorance rather than knowledge ; still the multitude of histories abridged, however inaccurately,* from careful compilations or *genuine* histories, when diffused amongst hundreds and perhaps thousands of readers whose attention was thus first directed to subjects of the highest interest, became useful as

* In one of the very best of these volumes the honey bee figured as *Stylops* ; while *Stylops* was labouring at the manufacture of a honeycomb : a well-delineated *Cicada* was the representative of a locust ; and a grasshopper, as a fair and just equivalent, was called a *Cicada*.

inducing a thirst for more precise and more extended information. I was neither so sanguine nor so vain as to imagine my attempt would be attended with any prompt or strongly-marked success: I was too well aware that I had no access to the readers of the *merely* popular, and that the eyes and ears of the bulk of the *merely* scientific were hermetically sealed against my labours, many instances coming to my knowledge in which men of this class boasted, as a highly meritorious fact, that they did not *see*, or did not *read*, or did not *take* the 'Zoologist.'

As time has rolled on, a more influential class of naturalists has arisen than either the unreflecting seeker for a half-hour's amusement, careless whether it be supplied by fiction or fact, or the technical professor who would invest the science in a garb of mystery. This large and rapidly increasing class are at work from one end of the kingdom to the other, in organizing associations and establishing museums and libraries, the great object of which is identical with that I have always had so deeply at heart, the making Natural History a pursuit for the shopkeeper and the mechanic. It is my firm conviction that there is no study more ennobling than this; none more likely to elevate the moral dignity of man; and there is no reason why any station in life should be excluded from its beneficial influence. Entertaining such views, it is with heart-felt satisfaction that I have watched the progress of numberless institutions called into existence by that energetic and influential class of my readers to which I have just alluded. When so many are labouring in the same cause, it may perhaps appear invidious to mention one, and yet I cannot avoid the temptation to name Mr. George Ransome, of Ipswich, whose well-directed exertions have done more to improve and exalt the intellect and character of his fellow-townsmen, than any warrior or legislator now basking in the brightest sunshine of popularity. It is to such men as Mr. Ransome we must look up as the true friends of our cause: it is they only who have the power to make Natural History a general study, and it is therefore the bounden duty of all who have the slightest influence with their neighbours, to lend a helping hand in gaining members to such

associations as Mr. Ransome and those who act with him are forming, and in contributing not only their money but *their time* in promoting an object so praiseworthy.

I advert with pleasure to the comments of several of my oldest subscribers on the spirit of extermination with which some of our rarer birds appear to have been pursued; and at the risk of exciting a smile on the countenance of some ardent ornithologist, I do not hesitate to express my entire unity with the observations of my correspondents. Even could we abandon the religious and moral grounds so ably urged by these advocates of gentleness, I would, as a naturalist, press on my readers the far higher pleasure we should receive from the establishment of these ornithological rarities in the vicinity of our homesteads. (See the papers by Mr. Wilmott, 2878; Sir Harford Brydges, 2914; Mr. Jerdon, 2951; and the Rev. Arthur Hussey, 2952).

I must not allow this opportunity to pass by of inviting particular attention to the extracts from the letters of Mr. Bates (Zool. 2663, 2715, 2789, 2836, and 2941), now devoting the prime of his life to Natural-History researches in the interior of South America, and of expressing my admiration for the zeal, the energy, the bravery, and the true devotion to the cause of science which have led him to wander alone beneath a tropical sun, and to devote his entire time to making collections of the least remunerative objects of Natural History. May honour and success reward his labours!

In accordance with the custom of former years I now proceed to give a sketch of our progress during 1850.

In *Mammalia*, I believe no new facts have been elicited, and as regards this country no additions have been made to our Fauna.

In *Birds*, one of the most remarkable and interesting discoveries has been made that has ever been recorded. One of those birds, the bones of which have been found in such abundance in New Zealand, and to which the careful and accurate pen of Professor Owen has assigned generic and specific characters, has been taken

alive, killed and eaten, and its skin brought to England, and exhibited at a meeting of the Zoological Society. The interesting exhibition having taken place after the volume for the current year was complete, it seems the more necessary for me to adopt this plan of making it known to my readers. The bird was described as fossil by Owen, under the name of *Notornis Mantellii*, and was taken alive in Dusky Bay, in the Middle Island of New Zealand. Dr. Mantell read a most interesting account of its capture, forwarded to him, together with the specimen, by his son, Mr. Walter Mantell, so honorably known among naturalists for his successful labours in the Palæontology of New Zealand. It appears that the recent tracks of the bird's feet were seen in the snow which at that time covered the island, by a party of sailors who landed in Dusky Bay. They were accompanied by dogs, which, being put on the scent, soon came in sight of the bird, and finally ran it down. When caught by the dogs it screamed most violently, but was not so much hurt but that it lived some time after its capture. When dead it was eaten, and its flesh thought to be delicious. Its size is that of a large fowl; in figure it much resembles the rail family, especially the genus *Porphyrio*, remarkable for its strong beak: it however differs from *Porphyrio* in its much shorter and stronger legs and toes; its shorter and much more feeble wings, which are remarkable for the abbreviation of the quill-feathers; and its tail exhibits other important discrepancies. The general colour of the plumage is nearly black, with beautiful and brilliant metallic reflections of blue and green. The beak is large, compressed laterally, very strong, and of a red colour. Mr. Gould read a technical description of the bird, which retains the name of *Notornis Mantellii*. It may be supposed that great interest was excited by the actual presence of a recent specimen of a bird previously set down as being long since extinct. The impression made on my own mind by this disclosure is, that we have been too hasty in our conclusions as to the fossil nature of the New-Zealand bones: is it not possible, is it not even probable, that the bones of *Notornis*, described as fossil, were those of comparatively recent birds? In the present instance a naturalist was at hand to rescue the skin from destruction; but this

was a mere chance, and nothing is more likely than that sealers or settlers should kill and eat so palatable a fowl and leave its bones for naturalists to ponder over. Every one is acquainted with those who do not know our commonest British birds from each other, and some would surely only recognise in the *Notornis* (supposing them emigrants to its distant habitation) a fowl goodly to look on and pleasant to the taste; it could not by any possibility occur to them that such a bird would cause an excitement amongst the learned greater than the discovery of a planet.

Connected with birds, I must not pass silently over the valuable papers by Mr. Tomes on the supposed new Shrike, (*Zool.* 2650 and 2734) in the latter of which that gentleman announces it as his own and Mr. Yarrell's opinion that the bird under consideration is *Lanius Excubitorides* of Swainson, described in the '*Fauna Boreali-Americana*,' ii. 115, and figured in pl. 34. I am aware that any opinion I may offer in opposition to that of such a distinguished author as Mr. Yarrell, and such a close and pains-taking observer as Mr. Tomes, is not very likely to influence the readers of the '*Zoologist*;' yet inasmuch as a citation of these opinions without comment seems to imply a kind of concurrence therein, I think it will be the more honest course for me to say that I am very far from being convinced that we have two species of gray shrike in this country, and that I consider the differences recorded indicative of age or season rather than of species. I may also observe that the character chiefly insisted on by Swainson, as distinguishing *Excubitor* from *Excubitorides*, the entireness or division of the posterior scale of the tarsus, is a difference not found to exist in the British specimens, which uniformly, as far as my observation has extended, possess the characters assigned by Swainson to *Excubitor*.

Another subject of interest, also connected with Ornithology, is the extraordinary and, I believe, unparalleled immigration of Waxwings, which took place in the winter of 1849—50. By a reference to the Index, under the head "*Waxwing*," it will be seen that a great number of records occur in these pages; but it is neither consistent with fact, nor fair to other journalists, to assume that these records furnish

anything approaching a just census of the number killed or seen. Many communications were sent me after the immediate interest of the subject had ceased, owing to the visitors having taken their departure; and still greater was the number of announcements in provincial papers of the wholesale and, I fear too often, wanton destruction of these beautiful birds. From an examination of all the sources of information within my reach, and totally disregarding the accounts of "immense flocks," with which we were frequently entertained, the following statistics appear to approach accuracy.

1. *Direction*: east to west: the birds appearing simultaneously along great tracts of the eastern coast and proceeding directly inland.

2. *Locality*: the eastern or coast districts of Durham and Yorkshire in the north, and of Norfolk, Suffolk, Essex and Kent, in the south: the exception of Lincolnshire is probably only one of observation and not of fact. In Scotland (Zool. 2769) the northern counties were generally but sparingly visited: the other recorded localities appear exceptional.

3. *Date*: chiefly the month of January; but the dates of instances in which the birds were actually killed is given below.

1849, November	4	Total in November.....	4
" December, 1st, 2nd, and 3rd weeks }	13		
" " 4th week	24	Total in December.....	37
1850, January, 1st "	79		
" " 2nd "	119		
" " 3rd "	153		
" " 4th "	78	Total in January	429
February, 1st "	49		
" " 2nd "	33		
" " 3rd "	16		
" " 4th "	7	Total in February	105
March	11	Total in March	11
	<hr/> 586	Total number	<hr/> 586

4. *Number*: on this subject but a slight approximation to the truth can be made: we may fairly suppose, *first*, that the majority

of birds, especially on the thinly inhabited coast of Scotland, escaped observation; *secondly*, that the majority of observations escaped record; and *thirdly*, that a great many of the records have escaped my inquiries: keeping these three conditions in view, the following summary of recorded instances of specimens *killed*, gives an idea of great numbers having *arrived*.

Food: hawthorn and holly berries, and the fruit of the dog-rose.

Weather: during January, March and April the thermometer was unusually low, the wind boisterous, and chiefly from the north and east. Notwithstanding the extraordinary cold weather of March there was no increase of numbers.

In *Reptiles*, the Green Lizard (*Lacerta viridis*) recorded by Dr. Bromfield (Zool. 2707) as having been found at Herne Bay is a notable addition. In this instance there is no doubt as to the species, some of the specimens having passed the ordeal of an examination by Mr. Bell; neither do I see any great climatal objection to extending the geographical range of a common Guernsey reptile into the southern counties of England: but on the other hand we must not lose sight of the fact that hundreds of these pretty lizards are annually imported from the Channel Islands, that many of them are intentionally liberated and others contrive to escape: when once at large they would experience little difficulty in procuring a sufficiency of their natural food, and thus apparently make good their footing as denizens.

In *Fishes*, the occurrence and capture of the Short Sun-fish (*Orthogoriscus Mola*) in a great number of places on the southern coast seems deserving of notice: a few records will be found in the 'Zoologist'; others I have obtained from local papers. A comparison of the dates and longitudes of the captures would lead to a supposition that the course taken by these strange fishes was from west to east, and at a very slow rate: the earliest recorded appearance I have met with was on the Cornish coast, on the 9th of June, and the latest at Dover, on the 8th of September; they were observed at a number of intermediate stations on intermediate days.

Entomology not only presents a much wider field for discovery than any other branch of Natural History, but in this country at least it has a greater number of ardent and devoted students; hence the amount of novelty is also greater: the principal additions occur in *Lepidoptera*. Mr. Weaver has taken a *Psyche* in the New Forest, pronounced by Mr. Stephens to be *P. opacella* of Herrick-Schæffer, but unfortunately described as new (App. xcix) under the name of *P. Fenella*. The species taken last year by Messrs. Ingall and S. Stevens has been described under the name of *Psyche reticella* (App. xciv). Mr. Doubleday records the capture of a single specimen of *Opigena Fenica*. Mr. Stainton has taken a specimen of *Orthosia rutililla* at Sheffield. Mr. Doubleday describes four species, new not only to Britain but to science: *Eupithecia palustraria* (App. cv.) apparently of common occurrence in Huntingdonshire: *E. Callunaria* (Id.) common on the heaths of Scotland and the north of England: *Hypenodes humidalis* (Id.) taken in Ireland in 1848, and subsequently by Messrs. Hodgkinson, Cooke, Greening, Cooper and others, apparently in the utmost profusion in Delamere Forest, Cheshire: *Spilonota Rosæcolana* (App. cvi) previously described and figured by Duponchel under the name of *suffusana*, which clearly belongs to another species: it does not appear to be uncommon, but had previously been confounded with a cognate species. Mr. Stephens has noticed the occurrence in this country of *Crambus Lythargyrellus*, (Zool. 2958) that name having been previously introduced into the British list in error: Mr. Stephens is uncertain as to the locality of his unique specimen: the same distinguished entomologist also records the capture by Mr. Weaver, in Scotland, of a pair of the *Tinea ochraceella* of Tengström: this insect has hitherto only been found in ants' nests. Mr. Douglas has described the following *Microlepidoptera*: *Elachista occultella* (Zool. 2806) found in May, 1848, flying above long grass under trees, in West Wickham Wood, Kent: *Grapholitha Weirana* (Zool. 2806) found in May, flying in sunshine round beech-trees at Mickleham, Surrey: *Ypsolophus palustrellus*, (Zool. 2835) the locality of which is not recorded, but two examples of which have been examined, one in Mr. Doubleday's the other in Mr. Allis's cabinet. Mr. Sircom has de-

scribed two new *Microlepidoptera* : *Gelechia acuminatella* (App. lxxi) of which he found two specimens only near Brislington, on the 28th of June ; and *Gelechia pulliginella*, (App. lxxii) of which he found also two specimens on Durdham Down in July.

In *Coleoptera*, Mr. Weaver has made a beautiful addition to our native insects by the capture of *Dictyopterus Aurora* in Scotland, as recorded by Mr. Stephens (Zool. 2961) : Mr. Dossiter, as I am informed by Mr. Stephens, has taken a single specimen of the remarkable *Leptinus testaceus* under a stone near Mickleham in Surrey.

In *Hemiptera*, Mr. Walker has described (App. ciii) four new British Aphides under the names of *apposita*, *lata*, *diminuta* and *Jacobæ*, all of them found on different species of *Senecio*.

In addition to novelties, several species previously esteemed of great rarity appear to have been taken in the utmost profusion. A few instances of this kind may be cited in *Lepidoptera* : *Procris Globulariæ* near Lewes, by Mr. Weir ; *Phragmatæcia Arundinis*, *Cœnophila subrosea*, *Acronycta strigosa*, *Nonagria neurica* and *N. Cannæ*, *Scheidax sparsaria*, *Chilo gigantellus*, and *Disthymnia funerella* at Whittlesea Mere, by Messrs. Bond, Bouchard and Weaver ; and others too numerous to mention. In *Coleoptera*, Mr. Weaver's Scotch captures stand pre-eminent : *Cetonia ænea*, *Lamia ædilis*, *Callidium striatum*, *Rhagium indagator* and *Pytho depressus* ; all in Perthshire : Mr. S. Stevens has taken *Trichius variabilis* on Tooting Common, Surrey : and finally, *Lymexylon navale* and *Apatæ capucina* are said to have occurred abundantly in Pembroke Dockyard, but the name of the captor has not transpired.

I have observed with much satisfaction that exotic entomology is claiming a greater share of attention than at any previous time. Next to the productions of our native country those of our colonies seem to me possessed of the greatest interest, and I have always regretted the small amount of attention bestowed, and of interest exhibited in the entomology of the vast island known as New Holland. A favourable reaction appears to be taking place, and we are daily acquiring a better knowledge of Australian insects.

In *Lepidoptera*, Mr. Hewitson has described three new *Papilionidæ* from the Amazons, under the names of *Papilio Bolivar*, *P. Columbus* and *Callithea Batesii* (Zool. 2976), and a beautiful *Pavonia* from Rio de Janeiro, under the name of *P. Telemachus* (Zool. 2276). Mr. Bates has also consigned to Mr. S. Stevens, among innumerable other novelties, an interesting and remarkable form of *Glaucopsis*, described (App. cxxii) under the name of *Myrmecopsis Eumenides*.

Of *Diptera*, Mr. Walker has described several beautiful species in the rich collection of the British Museum under the following names: *Tabanus Pyrausta* (App. lxv) from Java; *T. tenens* (Id.) from Parà; *T. albo-ater* (App. lxvi) from Parà; *T. viridiflavus* (Id.) from Brazil; *T. Fullo* (App. lxvii), country unknown; *T. fenestratus* (Id.), country unknown; *T. vagus* (App. lxviii) from Hong-Kong; *T. basivitta* (Id.) from Parà; *T. viduus* (Id.) from Parà; *T. desertus* (App. lxix) from Parà; *T. advena* (Id.), country unknown; *T. Sarpa*, *T. oplus*, *T. impar* and *T. truncatus* (App. lxx, lxxii) from New Zealand; *T. tripunctifer* and *T. ustus* (App. xcvi) from Port Natal; *T. brevivitta* (App. xcvi), country unknown; *Cyphomyia ornata*, *Sargus jucundus*, *Anthrax bistella*, *Exoprosopa bizona* and *Trupanea purpurea* (App. xcvi, xcvi), all from Parà; and finally *Mallophora tricolor* and *M. albifrons* (App. xcvi), both from S. America.

To exotic *Hymenoptera* the only additions are by Mr. S. S. Saunders: *viz.* *Myrmosa nigriceps* and *Parameria græca* (Zool. 2861) from Epirus: a new genus named *Raphiglossa*, of which he describes two species, *R. Eumenoides* and *R. Odyneroides*: two new species of *Hylæus* found in Epirus and named *H. versicolor* and *H. gibbus*.

In *Coleoptera*, the additions have been numerous and highly interesting. Mr. S. S. Saunders has described a new genus and two new species of *Stylopites*, named *Hylecthrus Rubi* and *H. Quercus* (Zool. 2808) found parasitical on the new species of *Hylæus* already noticed. Mr. W. W. Saunders has characterised several new, beautiful and extremely interesting genera and species of Australian longicorns, the names of which are enumerated below: *Enchoptera apicalis* and *E. nigricornis* (Zool. 2973); *Macrones rufus*, *Brachopsis concolor*, *Ste-*

noderus maculicornis and *Psilomorpha tenuipes* (Id. 2974); *Oroderes humeralis*, *Bimia femoralis*, *Akiptera semiflava* and *Hesthesis ornata* (Id. 2975).

Mr. S. Stevens has received a number of insects from our Australian colonies, &c., some of which have received names in the present volume: *viz.*, ten new longicorn Coleoptera under the names of *Hemesthocera flavilinea* (App. cxi), *Stenoderus ostricilla* (App. cxiii), *Skeletodes Tetrops* (App. cxiii), *Phoracantha impavida* (App. cxiv), *Tritocosmia atricilla* (App. cxv), *Cerambyx lativitta* (Id.), *Cerambyx subseratus* (App. cxvi), *Clytus spinicornis* (App. cxix), *Saperda bilabilis* (App. cxx), and *Phacodes Mossmanni* (App. cxxiv): a new beetle of the remarkable group *Pseudomorphites*, of large size, and distinguished by a large white lozenge-shaped blotch on each elytron: it has been named *Silphomorpha albo-picta* (App. cxxiv); a remarkable beetle, whose affinities remain uncertain, named *Agasma semicrudum* (App. cxvi); and a minute clerideous insect named *Clerus hilaris* (App. cxix).

Lastly, in *Neuroptera* are described, an *Agrion*, under the name of *Mecistogaster ancilla* (App. cxx), sent by Mr. Bates, from Ega, Upper Amazons, and an Australian *Panorpa*, called *P. ruficeps* (Zool. 2835).

I may remark that many of the new descriptions occur in the official reports of the Entomological Society; and that this very imperfect *résumé* of novelties, leaves entirely untouched the laborious papers of Mr. H. T. Stainton on Microlepidoptera (Zool. 2749 and App. lxxii). I have been more particular in giving these names and references at length, from a desire to point out to the scientific naturalist that while principally intent on the great object I proposed in undertaking the 'Zoologist,' while devoting the bulk of my volume to habits, manners and peculiarities of living animals, I am still anxious to keep pace with the age in duly assigning to every novelty a name whereby it may be known, and defining characters whereby it may be distinguished. This ample list of novelties will abundantly evince my views on this head, and is sufficient to redeem any publication from the charge of neglecting science.

In *Radiata*, we have one addition of great value, *Ophiocoma par-mularia*, described and figured by the Rev. George Harris (App. cix), in a paper communicated by the Rev. James Smith. I cannot permit this opportunity to pass of calling the attention of my readers to the labours of these gentlemen in Scotch Natural History. It is remarkable how little has hitherto been done for Scotland by her own sons. The surpassing richness of the country, especially in Ornithology and Entomology, is shown whenever an enterprising Englishman crosses the border: for instance, in Entomology, Mr. Weaver has collected in a few weeks, and in a single locality, more novelties and rarities than have been found for years previously throughout the entire kingdom, and these for the most part, large, striking and beautiful species, and many of them in the greatest profusion. Mr. Smith seems, however, determined to remove what is really a cause of merited reproach to Scotchmen: no one has contributed papers of higher interest to the present volume, and I shall feel truly gratified if Mr. Smith's shrewdness in observing, and his admirable method of communicating, be followed up by other residents in that beautiful and truly interesting country.

And now the only duty that remains, is the very agreeable one of once more offering my sincere and warmest thanks to those gentlemen who, taking a view of the subject similar to my own, have so kindly and cordially assisted me with their exertions. The progressive improvement of the 'Zoologist' still continues to depend on them: commensurate with the increased value of communications is the increased sale; and commensurate with the increased sale is the quantity of matter I am able to give: so that our interests are mutual; and, as I firmly believe, are also identical with those of the science. Every additional contributor brings his quota of information to the general stock, and every additional subscriber supplies the means of giving additional information.

EDWARD NEWMAN.

Devonshire Street, Bishopsgate,
November 20, 1850.

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ADVERTISEMENT.

'THE ZOOLOGIST' will be continued both as a monthly and an annual publication. As a monthly, it will contain thirty-two pages of letter-press, occasionally accompanied with illustrations engraved on wood; will be on sale three days before the end of every month; and will be charged one shilling. As an annual, it will be sold on or about the 1st of December; will contain twelve monthly numbers, bound and lettered uniformly with the present volume; and will be charged thirteen shillings. An alphabetical list, both of contributors and contents, will be published once in the year.

THE ZOOLOGIST

FOR 1850.

Bats flying by Day.—November 9th: shot a specimen of the noctule (*Vespertilio noctula*)—the ‘altivolans’ mentioned by Gilbert White, in those notes which are beyond praise, as not seen after July. I have, however, seen them repeatedly through the past autumn: and in the very middle of a glaring sun one hot day in August, the pipistrelle was sporting and careering after gnats, apparently quite at his ease. This was at Kenmore, in Scotland.—*W. D. Crotch; Taunton, Somerset, October 20, 1849.*

Hedgehog devouring Bees.—The following trait in the gastronomic propensities of the hedgehog may I hope prove, if not practically useful, at least interesting to some of the readers of the ‘Zoologist.’ A gentleman, who prided himself on the number of his bees and the excellence of his honey, was much surprised and vexed to find them diminishing daily, and that too without apparent cause: however, by long and continued watching, the culprit—a fine hedgehog—was caught about daybreak, in the act of scratching at the entrance of the hive, and devouring its ill-fated inhabitants as they emerged, their stings doubtless tickling his palate, and imparting a piquant or curry-like flavour to his meal. The theft was proved beyond a doubt on a post-mortem examination of the offender, who, freed from the ridiculous charge of sucking cows, may, I hope, be pardoned the casual sin of an epicurean feast of bees,—at all events more excusable than that of Arrius on nightingales.—*Id.*

British Martens.—Some opinions have lately been given in the ‘Zoologist’ respecting the identity of the two species of marten found in Britain; and Dr. Morris (Zool. 2619) recommends an examination of the intestines, &c. May I be allowed to call attention to Mr. Jenyns’ paper on “Some of the smaller British Mammalia,” in the ‘Annals and Magazine of Natural History,’ vol. vii. page 262? Mr. Jenyns there mentions receiving two young examples of *Martes foina*, having still the milk teeth, and the bones of the cranium very loosely united; yet even in this young state the skull was larger and heavier than that of an adult specimen of *Martes abietum* in the collection of Mr. Yarrell; and moreover observes, that the skulls of the two species in the possession of the latter gentleman present the same differences of size, &c. He adds, “These individuals (*M. foina*) were of the same size, and measured 17 inches in length, exclusive of the tail, which was not quite 9 inches. The length of the cranium was 3 inches 4 lines; its breadth across the zygomatic arches, 1 inch 10 lines; its weight, 4 drachms 38 grains.” More examinations of a like kind would probably decide the point.—*Robert F. Toms; Welford, Stratford-on-Avon, November 5, 1849.*

The Wild Cat.—In the October number of the 'Zoologist' (Zool. 2587) you insert a query respecting the truth of the existence of a wild cat in the British woods, and will feel obliged to any observer for information on this disputed subject. Allow me to add that this subject might be soon settled if you have any correspondents in the North of Scotland, where it is said to occur frequently. When a boy, residing in Scotland, I have frequently seen what is generally supposed to be our wild cat, and which differs, in my opinion, very much from "the domestic cat having become wild," in size, form and colour. And if I mistake not there is a specimen of the wild cat, from Scotland, in the Museum of the Zoological Society, along with a specimen of the *Felis maniculata*—the alleged origin of our domestic breed. The comparison of these specimens will be of some interest. I have written to a friend in Scotland to procure one and send it to you, that you may have ocular proof of the existence or otherwise of the *Felis catus* of Linneus.—*J. Mc'Intosh ; Milton Abbey, November 2, 1849.*

[My correspondent puts the question rather differently from myself. I have not mooted, neither am I prepared to moot, the large question, "Is there a *Felis catus* of Linneus?" My question runs thus: "Is there in the woods of Britain a cat specifically distinct from that universally domesticated?"—*Edward Newman.*]

Puppies nursed by a Barren Cat.—I saw, for the first time, on the 14th of this month, two terrier puppies—about a fortnight old—carefully tended and nestled under a black cat, who appeared anxious and uneasy on my taking one of them out of the basket to examine him. The owner of the puppies—an ironmonger, in Victoria Road, Pimlico—told me that their mother having been stolen a few days before, he had placed the puppies in the basket, covered them with a piece of carpet, and fed them by dipping their noses in a saucer of milk and forcing them to swallow the milk. The motherless little ones in their basket, and the operation of feeding them, appeared greatly to interest the house cat, a female five years old, who has never had any kittens, and she frequently stood looking into and rubbing herself against the basket, as though inclined to step in. At length, two days before I saw them, the puppies, having had their noses well soused in the milk, as usual at their meal times, were restored—wet-faced and sneezing—to their basket, when Puss, who had attentively watched the whole proceedings, quietly stepped into the basket,—a low hamper,—licked the puppies dry, and cowered over them like an ordinary feline mamma. She has since steadily adhered to her *protégés*, who often fruitlessly attempt to suck their barren foster-mother, and are in return most tenderly cleaned and caressed by her. The puppies are short-tailed, clumsy little urchins, about the size of half-grown kittens.—*Edward Brown Filton ; 53, Upper Harley Street, October, 1849.*

Food of the Water Vole (*Arvicola amphibius*).—Several years ago I met with a very large quantity of separated valves of the common mussel in the burrows of water voles, but not one was opened by a portion of the shell opposite the hinge having been eaten away, as mentioned by Mr. Gurney (Zool. 2588): in this instance the hinge itself was eaten, and the valves separated entire. I mention this to show that different means are resorted to, to attain the same end,—and most probably by the same animal,—on different occasions and places; but can give no opinion as to which of the two animals it is to be attributed.—*Robert F. Tones ; Welford, Stratford-on-Avon, November 5, 1849.*

Catalogue of Birds taken in Pembrokeshire, with Observations on their Habits, Manners, &c. By Mr. JAMES TRACY.*

Gyr Falcon. The specimen from which Mr. Yarrell made the drawing, in his excellent work on British Birds, was killed on a warren on the estate of the Earl of Cawdor, was set up by me, and afterwards given by the Earl to the Zoological Society. It had been observed by my father (his lordship's keeper) for eight or ten days, and had almost on each day killed and partly devoured a cock pheasant. It was very shy, always perched on the highest rocky eminences, and therefore difficult to get at; but was accidentally come on, and shot in the act of rising from a cock pheasant it had recently killed.

Peregrine Falcon. Tolerably common on this coast, from Caldy Island round westward to St. David's Head; breeding in the most inaccessible parts of the cliff; lays four eggs, sometimes five, and in one instance I observed six young. They make no nest, but lay their egg in a cavity of the rock where a little loose clayey earth has been deposited: sometimes in the old nest of the raven, or carrion crow,—but I never saw a nest without a little earth in it: they fix upon the situation early in March, and lay about the first week in April. Both male and female sit in turn on the eggs. I have known an instance where the male hatched and reared the young ones when the female had been killed; and also, when the male had been shot, the female has continued the work of incubation. When they have young ones, they are not to be deterred from their nests, nor will they—even if fired upon—desert their offspring. On one occasion I remember my father and myself firing at a pair of these birds, and the female returned to the nest almost immediately: we repeated this three times before we succeeded in getting her. In almost every instance where I observed a nest of this fine bird, the following birds have had nests in the immediate vicinity,—that is, within 100 or 150 yards: the guillemot and razorbill in immense numbers, within a few feet; puffins; the kestrel, raven, carrion crow, jackdaw, red-legged crow, great black-backed gull, one nest; lesser black-backed gull, several nests; herring gull, common; kittiwakes, in thousands; common and green cormorants, swifts and sand martins: and yet none of them showed any signs of alarm at the approach of so formidable a foe. I do not recollect a nest where the herring gulls, guillemots, razorbills

* Naturalist and Taxidermist, Pembroke.

and puffins were not abundant. The old birds give you plenty of notice, by their harsh cry, when you are in the immediate vicinity of their nest; and it is not difficult to find the spot selected, the same old arched cavity being occupied every year. In one instance eleven pairs of herons were breeding on the ledges of the rocks, within 150 yards of the nest of the peregrine falcon.

Merlin. Scarce; although I have had, during a period of fifteen or eighteen years, as many as eight or nine to set up for different gentlemen in the county.

Kestrel. Very common; breeding in our cliffs, and also in every old castle in the county.

Sparrow Hawk. Very common.

Common Buzzard. Used to be very common, but becoming more scarce every year.

Marsh Harrier. Also used to be more commonly met with than it is now.

Hen Harrier. Common: breeds on heaths and furzy moors, and pretty generally distributed over the county.

Long-eared Owl. Not very common.

Short-eared Owl. Very common some seasons, in the months of October and November, in turnip-fields and warrens; its stay here very limited.

White Owl. Very common: breeds in cliffs and old castles.

Tawny Owl. Not very common.

Great Gray Shrike. A specimen, taken near Haverfordwest, is in the collection of R. J. Ackland, Esq., of Boulston.

Red-backed Shrike. Common, and pretty equally distributed in pairs over the county; leaves us early in September.

Spotted Flycatcher. Very common; leaves in October.

Common Dipper. Tolerably common in the upper or more mountainous part of the county.

Missel Thrush. Very common: breeds early, and has two and sometimes three broods in the year.

Fieldfare. Very common: arrives early in October and leaves in March. I have a note in my journal, "Saw a flock of fieldfares and redwings, Sunday, April 10, 1842."

Song Thrush. Very common. I do not think any migrate from here, although I think some few come here with the fieldfares and redwings.

Redwing. Common; arriving with the fieldfares, and departing with them.

Blackbird. Very common. I received a young bird, but very much mutilated by shooting,—perfectly white,—from Carmarthen. Piebald varieties are not uncommon.

Ring Ouzel. Rare. I obtained one specimen, killed at Angle, which is now in the collection of Viscount Emlyn, at Stackpole Court.

Hedgesparrow. Very common. This species is very subject to warts on the beak and legs : how can this be accounted for ?

Redbreast. Common.

Redstart. Rather rare.

Black Redstart. Very rare. Two examples occurred here in the autumn of 1847 ; one killed by Mr. George Hughes, of the Coburg Hotel, Tenby, on the eaves of the hotel, and very much mutilated ; the other by me, with an air-cane loaded with small shot, on the water-trough of my neighbour's house in the street of Pembroke, and is now in Viscount Emlyn's collection, at Stackpole Court.

Stonechat. Very common ; remaining all the year.

Whinchat. Rather scarce.

Wheatear. Very common on our downs and warrens ; arriving in April and leaving in October.

Grasshopper Warbler. Not very common ; leaves in winter.

Sedge Warbler. Like the last-named species, not very common.

Blackcap. Common : arrives early in April, leaves in September.

Garden Warbler. A specimen obtained by me in September last is the only one I have seen, and is now in Viscount Emlyn's collection.

Common Whitethroat. As its name implies, very common ; arrives the latter end of March, and a few individuals stay as late as the first week in November.

Wood Warbler. Scarce. Although I can mostly procure a few specimens the latter end of April or the first week in May, I think they do not stay here to breed, for I have never found them later ; and being so well acquainted with the voices of the other warblers, the peculiar twitter of the wood warbler could not have escaped me.

Willow Warbler. Very common.

Chiff-chaff. Also very common. I have seen specimens of this bird in December, January and February, in very severe weather.

Golden-crested Regulus. Common and plentiful the year round.

Great Tit, Blue Tit, Cole Tit, Marsh Tit and Long-tailed Tit. Common throughout the year.

Pied Wagtail. Common. I have long had my suspicions that

birds I saw here on the coast, particularly young birds, were not the young of our pied wagtail, from their uniform slate-gray heads, backs and rumps; our pied wagtail having the top of the head and rump nearly black at all ages. I am now convinced that a few young ones of the continental white wagtail appear on our coast in the months of September and October.

Gray Wagtail. Common in winter: some few pairs remain and breed with us.

Ray's Wagtail. Tolerably common in small flocks, at the latter end of August and September, frequenting pasture-fields where cattle are grazing. I have oftentimes wondered how they avoided being trodden on by the cattle. Good old specimens are very scarce.

Tree Pipit. Common. I am doubtful whether this bird remains during the winter.

Meadow Pipit, Rock Pipit, Skylark and Woodlark. Common all the year.

Snow Bunting. Scarce, but often obtained in a severe winter.

Common Bunting, Yellow Bunting and Black-headed Bunting. Plentiful all the year round.

Chaffinch. Very common.

Mountain Finch. Very common some winters, feeding in flocks with chaffinches, in farm-yards, and in woods on the beech-mast or nuts.

House Sparrow, Greenfinch and Goldfinch. Common throughout the year.

Siskin. Taken occasionally in autumn, feeding on the seeds of the birch and alder.

Common Linnet. Common.

Lesser Redpole. Rare, although a few frequent the mountainous part of the county.

JAMES TRACY.

Pembroke, October 4, 1849.

(To be continued).

Birds and Birds' Nests in Aberdeenshire. By Mr. THOMAS EDWARD.

[I have oftener than once made mention in the 'Zoologist' (Zool. 1700, 1910) of Mr. Thomas Edward, shoemaker, in Banff, who is a zealous admirer of Nature and an excellent preserver of animals.

Occasionally he tears himself, as it were, from the employment to which necessity compels him, and slakes his thirst for the contemplation of zoological scenes and objects by a solitary ramble amid the mountains and hills, which so greatly abound in the upper portion of the shires of Aberdeen and Banff. Of some of his adventures during a ramble of this description, in the spring of the present year, he sent me an account. This I considered so interesting, that I have rewritten it, and now submit it for insertion in the 'Zoologist.' The facts, the ideas and the reflections are all his own, and in many parts I have retained his own expressions. Upon the accuracy and the minuteness of his observations, and upon his veracity of character, the utmost reliance may at all times be placed. Some of the mountains which he traversed are of great elevation: their names are Gaelic. In the part of the county of Aberdeen where I reside myself,* and down to the very shore, and along all the eastern coast as far as the Firth of Forth, the names of hills, rivers, and other of the more conspicuous objects in Nature, as also the designations of landed estates and even of many of the farms, are to this day either in the Gaelic or in the Welsh language,—proving, in the clearest manner, that the country in early times was occupied by a Celtic race, and that its present Teutonic inhabitants are of more recent introduction. The Picts are supposed to have been a colony of the ancient *Cimbri*, and to have had possession, for a length of time, of the eastern coast of Scotland,—‘the mouth of a river’ in their language being *aber*, and in that of the Gael *inver*. On being driven from these territories, it is believed that they were some time in Cumberland, ‘the land of the Cymbri,’ and that they finally settled in Wales, the modern Welsh calling themselves *Cymry* to the present hour, and *aber* occurring as frequently in proper names in Wales as it does along the eastern coast of Scotland.—*James Smith; Manse of Monquhitter by Turriff, Aberdeenshire, November 21, 1849.*]

May 14th, 1849. In a ramble among the hills to-day, I had the good fortune to find a curlew's nest with four eggs, a plover's (*Charadrius pluvialis*) with the same number, and a wild duck's with ten.

* Monquhitter: the name of this parish is Gaelic, and it ought—I am informed by good Gaelic scholars, for I do not understand the language myself—to be spelled with the letter *f*, instead of *quh*; *quh* occurring in Saxon and not in Gaelic words. The meaning is said to be, ‘the moss where the deer assemble.’ This name, I can easily conceive, was in remote ages eminently descriptive of the locality.

The eggs of the plover and wild duck were partially covered with snow, and they had evidently been abandoned by the birds: this circumstance induced me to examine these eggs with great minuteness, and, having done so, I found in those of the wild duck perfectly formed birds, while those of the plover were somewhat discoloured, and were beginning to get what may be called *miry*. By this I was enabled, from what I know of the habits of the wild duck and of the plover, to come to the conclusion that the eggs of the former must have been sat on from sixteen to twenty days, and those of the latter for about five or six. These facts united leave no room to doubt that they had all been laid and sat upon before the commencement of the storm, which raged with such unexpected fury towards the end of April,—which had at the time covered the nests completely over with snow, and which had, in consequence, compelled the birds to abandon them. It is quite evident that, upon these upland and exposed hills, the breeding-season of many other birds must have been put an end to in a similar manner.

May 15th. Descending from the Tap o' Noth, where I had been ranging about for the greater part of the day, I entered a narrow glen, in which runs a burn or rivulet called Ness Bogie, separating Noth from Kirknie. While going along the banks of this streamlet, I observed three pairs of 'kittie-needies'* and a few water ouzels (*Cinclus aquaticus*), and my ears were, every now and then, greeted with the well-known—and at all times the welcome—call of *cuckoo*, while my eyes were not unfrequently gratified by a sight of the bird itself. The cuckoo, indeed, appears to be very numerous in this part of the country: this is especially the case among the small patches of natural birch which here and there adorn the sides of the hills, at this particular part of the glen. The ring pigeons (*Columba Palumbus*) are also seen in great numbers; and, as I passed on, the solitude of the glen was often broken by the *clap* of their wings, as they arose from the small plantations on my approach. An abrupt turn of the rivulet brought me suddenly and unexpectedly within a few yards of a beautiful heron (*Ardea cinerea*): I immediately stood still: his upright and motionless attitude indicated plainly that he had been taken by surprise; and for the moment he seemed, as it were, stunned, and incapable of flight: there he remained as if fastened to the spot,—his bright yellow eye staring me full in the face, and with an expres-

* 'Kittie-needie' is the name given, in this part of the country, to the common sandpiper (*Totanus hypoleucos*). It is formed in imitation of its peculiar cry.

sion that seemed to inquire what right I had to intrude into solitudes where the human form is so rarely seen. As we were thus gazing at each other, in mutual surprise at having met in such a place, I observed his long slender neck quietly and gradually doubling down upon his breast; his dark and lengthened plumes were at the same time slightly shaken: I knew by this that he was about to rise: another moment and he was up. Stretching his long legs behind him, he uttered a scream so dismal, wild and loud, that the very glen and hills re-echoed the sound, and the whole scene was instantly filled with clamour: the sandpiper screamed its *kittie-needie*,—the pigeon cooed,—the pipit (*Anthus pratensis*), with lively motion, came flying around me, uttering all the while its *peeping** note,—from his heathy lair the moor-cock sprang with whirring wing, and gave forth his well-known and indignant *birr bir-bick*,—the curlew came sailing down the glen with steady flight, and added to the noise with his shrill and peculiar notes of *poo-elie poo-elie coorlie coorlie wha-up*,—and from the loftier parts of the hills the plovers ceased not their mournful wail, which accorded well with the scene of which I alone appeared to be a silent spectator. A silent, indeed, I was, but not an uninterested spectator, for I enjoyed the whole with the utmost satisfaction; and I moved not a foot until the alarmed inmates of the glen and the mountain had disappeared, and solemn stillness had again resumed its sway. After descending the stream for nearly two miles, I crossed it, and made for the summit of Kirknie. I had proceeded between twenty and thirty yards from the water, when I observed a ring pigeon rise from the ground a short distance before me. Coming up to the spot, I was surprised at seeing what appeared to be a nest, on which were lying two beautiful white eggs: I could not believe my own eyes: looking again, however, the eggs were still there, and as white as snow: I felt them; they were warm, and I had no longer any doubt that I had found a ring pigeon's nest on the ground. The nest, which was composed of a few small sticks, was placed on the bare surface of the earth, and under the shade of a branch of a juniper bush (*Juniperus communis*). The cause of the singular departure, on this occasion, from its usual habits of nidification on the part of the ring pigeon, I shall leave wiser individuals than myself to determine,—merely remarking that it could not have been occasioned by a want of wood, as there were trees at a distance of only about fifty or sixty yards from the spot. I took with me the eggs thus unexpectedly

* It is known here by the provincial name of the 'heather-peeper.'

obtained, and proceeded upwards till I reached the summit of the hill. Tired with the exertion I sat down to rest, and I had not remained long in this position when I beheld two wild ducks moving across the heath, accompanied by a brood of young ones: they came onwards, not thinking of my presence, and, when within a few paces of where I lay, I suddenly made a spring at the whole. What a splutter ensued! I succeeded in capturing two of the young ones. How they squeaked, and what a melancholy noise the old birds made when they beheld me handling them! After admiring for a while the beautiful silky down with which they were covered, I set the little prisoners at liberty, and they speedily disappeared among the heath. As I went on my way I could hear the *quack* of the old ducks, who were no doubt busily collecting their young ones, in order to lead them, as quickly as possible, to some friendly pool.

May 17th. Towards the evening of this day, as I was crossing the Clashmauch, on my way to Huntly, after having wandered about from morning without finding a single nest, I observed a curlew rise from a marshy part of the hill, to which I accordingly bent my steps, in hopes of falling in with her nest. In this, however, I was disappointed: but in searching about, and within a few feet of the remains of a wreath of snow, I came upon a female wild duck lying beside a tuft of rushes. As I imagined she was skulking with a view to avoid observation, I touched her with my stick, in order that she might rise: she, however, rose not. I was surprised; and, on a nearer inspection, I found that she was dead. She lay raised a little on one side, her neck stretched out, her mouth open and full of snow, her wings somewhat extended, and with one of her legs appearing a little behind her. Near to it there were two eggs. On my discovering this I lifted up the bird, and underneath her was a nest containing eleven eggs: these, with the other two, made thirteen in all: a few of them were broken. I examined the whole of them, and found them, without exception, to contain young birds. This was an undoubted proof that the poor mother had sat upon them from two to three weeks. With her dead body in my hand I sat down to investigate the matter, and to ascertain, if I could, the cause of her death. I examined her minutely all over, and could find neither wound nor any mark whatever of violence: she had every appearance of having died of suffocation. Although I had only circumstantial evidence, I had no hesitation in arriving at the conclusion that she had come by her death in a desperate but faithful struggle to protect her eggs from the fatal effects of a snow-storm. There cannot be any doubt that the storm, which has

been taken notice of under the date of May 14th, had terminated her existence. I could not help thinking, as I looked at her, how deep and striking an example she afforded of maternal affection, and how greatly even many of the human race might profit by its contemplation! On the cheek of how many a heartless and unthinking mother might not such a spectacle call up the blush of shame! The ruthless blast swept, with all its fury, along the lonesome and the unsheltered hill; the snow rose higher, and the smothering drift came fiercer, as night drew on; yet did that poor bird, in defiance of the warring elements, continue to protect her home and the treasure which it contained, until she could do so no longer, and yielded up her life: that life she could easily have saved, had she been willing to abandon the offspring which Nature had taught her so fervently to cherish, and in the endeavour to preserve which she voluntarily remained and died. And where, on that fatal night, was her partner? He, too, had doubtless been surprised and overtaken by the unexpected storm; but, having no charge to protect, he had betaken himself to some friendly cover to await the issue of the blast; and that having come at length, he had winged his way to the place where were his companion and her nest: but instead of the brown heath and the rushy marsh which had there become so familiar to him, he now found everything enveloped in a mantle of snow. For a while, perhaps, he had wheeled to and fro through the air, uttering his call-note often and loud; but in vain did he call, for she who would have eagerly responded to it was no longer alive. Despairing of finding the object of his anxious solicitude, he had, at last, winged his mournful flight to some distant lake, to spend the summer alone. Occupied by such feelings and reflections as these, which many, perhaps, will consider silly and extravagant, but which I could not at the moment help, I know not how long I might have sat had I not been aroused from my reverie by the barking of a shepherd's dog. The sun had already set,—the gray twilight had begun to hide the distant mountains from my view,—and, not caring to be benighted on such a spot, I wrapped a piece of paper—as a winding-sheet—around the faithful and devoted bird, contrived to form a hole sufficiently large for the purpose, and into it I put both the mother and the eggs: I covered them over with earth and moss, and above all placed a solid piece of turf; and having done so, and being more affected than I should perhaps be willing to acknowledge, I left them to moulder into their original dust, and went on my way.

June 26th. Having been out this day, in the plantations about

Banff, in search of a flycatcher's nest (*Muscicapa grisola*), I accidentally came upon the nest of a willow wren (*Sylvia Trochilus*), which was built in a wild rose-bush, at the height of about five feet from the ground. At this I was not a little surprised, as I had never found, nor heard of, the willow wren breeding except upon the ground. The nest contained seven or eight eggs, was built of dried grass, and was of loose texture: its form was round, and it had a hole on one side for the bird to go in and out at: the inside was lined with the fur of the rabbit and hare, and also with some feathers.

July 14th. I this day revisited the willow wren's nest in the rose-bush, to see if it had escaped the unsparing search of the boys: to my satisfaction I found it full of young ones. On my handling one of them they all left the nest, being quite able to fly.

Some boys this year, in their nesting excursions, found, in the wood of Mountcoffee—near Banff, and belonging to Lord Fife—the nest of a wild duck in a tree, and about twenty feet from the ground: it contained eleven eggs.

THOMAS EDWARD.

16, High Street, Banff.

Preservation of Birds' Eggs.—A means of extracting even the fully-formed chick from the egg is worth knowing, and is simply this: make a small hole in the *side* of the egg and put it in an ant-heap; in a few hours there will be only the dry skeleton left, and the shell fit for the cabinet: by-the-bye all eggs are better if blown with one hole in the side, which may easily be done with a straw or glass blowpipe, and fixed on the cards with rosin and bees-wax mixed.—*W. D. Crotch; Taunton, October 20, 1849.*

Capture of the Peregrine Falcon (*Falco peregrinus*) *near Marlborough.*—A fine specimen of the above bird was captured by the gardener of a clergyman in this town, on the 18th of this month: it had struck a blackbird in the garden, close to the house, and was so intent on its prey as to allow the man to approach and knock it down with a stick. It is now in the possession of Mr. Parker, a taxidermist in this town.—*G. J. Webb; Marlborough, Wilts, November, 1849.*

Peregrine Falcon shot near Market Weighton.—A fine adult male specimen of the peregrine falcon was sent the other day to Mr. Graham for preservation, from the neighbourhood of Market Weighton, where it had been obtained.—*Beverley R. Morris, A.B., M.D.; York, November 8, 1849.*

Kestrels breeding in Confinement.—A pair of kestrels (*Falco Tinnunculus*) have, I am informed, recently bred in confinement, in the aviary of the Rev. J. W. Bower, of Barmston, near Bridlington. It is the first instance of the kind I ever heard of.—*F. O Morris; Nafferton Vicarage, November 19, 1849.*

Occurrence of the Goshawk (Falco palumbarius) near Stowmarket.—A fine specimen of the goshawk, in immature plumage, was shot at Westhorpe, about five miles from this town, on the 20th of November. The farmer who shot it says it "rose out of a bush," and that is all of its previous history I could get. This is a rare species in the eastern counties.—*C. R. Bree; Stowmarket, December 1, 1849.*

Capture of the Honey Buzzard (Falco apivorus) at Bridlington Quay.—A fine specimen of the honey buzzard was recently taken at Bridlington Quay. It flew against a person's window about twelve o'clock at night, and made such a flapping noise that he got up, opened the window, and caught it.—*Id.*

Marsh Harrier (Circus rufus) shot at Wassend.—A fine specimen of this bird was shot early in October, by the keeper, in presence of Sir W. Milner, Bart., at Wassend, near Hornsea, in this county. It is in Mr. Milner's fine collection.—*Beverley R. Morris, A.B., M.D.; York, November 8, 1849.*

Ash-coloured Harrier (Circus cineraceus) obtained near York.—Lord Wenlock's keeper shot a fine specimen of this harrier at Esorick, about the 15th of October. It is in the collection of the Hon. and Rev. S. Lawley.—*Id.*

Occurrence of Tengmalm's Owl (Noctua Tengmalmi) in Yorkshire.—About two years ago an individual of this very rare little bird was shot in the woods at Hunmanby, by Admiral Mitford's keeper. Its occurrence would in all probability have remained unnoticed, had it not fallen under Mr. Graham's eye during a recent visit to that neighbourhood.—*Id.*

Occurrence of the Great Gray Shrike (Lanius excubitor) near Bedale.—On Wednesday evening last, I had brought to me a male specimen of the great gray shrike, which had been shot near Bedale, in the North Riding of this county, on Saturday, the 10th of November instant. It has two very conspicuous patches of white on each wing; the upper parts of the plumage are of a fine pearl-gray colour.—*James C. Garth; Knaresborough, November 19, 1849.*

Occurrence of the Greater Northern Shrike (Lanius borealis) near Knaresborough.—Perceiving, from the cover of the last number of the 'Zoologist,' that you were wishful that the Rev. James Smith would send you a figure and description of the shrike referred to (Zool. 2496), I have great pleasure in forwarding you a pencil drawing (the size of life) and full description of a specimen of *Lanius borealis*, which was shot just outside our town, on the 15th of December, 1843, during a snow-storm, by a mason's labourer (another example was seen on the same occasion, but was not secured). I received it the same day: it is a female. Length to the end of tail $9\frac{1}{2}$ inches; wing from flexure $4\frac{1}{2}$ inches: upper mandible brownish black, lower one rather lighter in colour; iris dark brown; the feet dull black; terminal half of the outer scapulars white, a patch of the same colour on the primaries *only*; the tail black, the greater number of feathers tipped with white, the outer one almost entirely of the latter colour, the second from the side half black half white; the upper parts are dark ash-gray, much darker than a specimen which I possess of *Lanius excubitor*; and the head of *L. borealis* appears to me to be larger in proportion to the size of the bird than the commoner species; the lower parts are grayish white, and there are numerous transverse brownish lines on the neck and breast; a broad band of black commences on the middle of the forehead, covers the loreal space, extends through the eye as far as the ear-coverts, where it terminates; the wing-coverts, alulae and quills brownish black.—*Id.*

Occurrence of the Greater Northern Shrike in Warwickshire.—During the winter of 1844-5, five specimens of gray shrikes were taken within a few miles of Stratford-on-Avon, all of which I had opportunities of examining when in a fresh state: of these, two were undoubted specimens of *Lanius excubitor*, and the other three resembling the one mentioned by the Rev. James Smith (Zool. 2496). That it was a distinct species I had not at the time any doubt, but neglected to make any close examination. Two were males (ascertained by dissection), the other a female. Subsequently I obtained two others; one in the flesh, and one which was killed near Broadway, in Worcestershire, and was exhibited in a bird-stuffer's window at Evesham for several years. Unfortunately I took no measurements at the time, and the sex was ascertained by the bodies after being skinned by the bird-stuffer; however, such dimensions as can be taken with any exactness from a preserved specimen I shall proceed to give, first describing the plumage, &c. A comparison with *L. excubitor* will perhaps be the most satisfactory method. The general colour of all the upper parts is rather a darker but purer gray than in the commoner species; all the under parts are the same as in the last-mentioned species; the quills, too, are similar, except that only the primaries have a patch of white about their middle, whereas in *L. excubitor* the secondaries also have a patch, giving the wing when closed *two* spots of white instead of *one*. But a greater difference exists in the distribution of the white and black of the tail: the outer tail-feather on each side of *L. borealis* has the outer web white all its length, and the inner for only half its length; the second has the outer web white the whole length, but becoming extremely narrow towards the base, leaving a narrow wedge-shaped space of black along the shaft; the inner web white for a little more than one-fourth from the tip; the third has the outer and inner web nearly equally tipped with white for scarcely so much as a fourth from the tip; the fourth has merely a spot of dirty white at the end; middle tail-feather black: *L. excubitor* has the outer tail-feather on each side entirely white; the second with only a narrow patch of black on the edge of the inner web near the base; the third with two similarly shaped but larger patches on both webs, opposite each other, the inner one reaching the shaft and the outer one nearly so; the fourth is tipped with dirty white, and has a patch of the same extending across both webs and shaft at its base; middle tail-feather black: in fact, the outer tail-feathers of *L. borealis* are black, marked with white, and in *L. excubitor* white, marked with black. The tails of the yellow and gray wagtails are in some measure an illustration of this.

DIMENSIONS.

	<i>L. excubitor.</i>	<i>L. borealis.</i>
	in. lines.	in. lines.
Bill along the ridge.....	„ 8½	„ 8½ nearly
Wing from carpal joint ...	4 9	4 6½
Tail	4 10	4 4
Tarsus	1 1	1 0
Middle toe and claw	1 0½	1 1½

From these measurements it might be supposed that the two species are nearly of the same size: when, however, in a fresh state, the superior bulk of *L. excubitor* is sufficiently manifest; and this circumstance led me at first to imagine that the differences were merely those of sex. The most recently killed one that has come to my

knowledge, and the one from which the description has been taken, was shot near Warwick, in December, 1846. One of the specimens of *Lanius excubitor* above mentioned was taken in a brick-yard, in the suburbs of Stratford, in a most singular manner: a boy had a tame goldfinch in a cage, hanging at the door of a cottage in the brick-yard, in which were a number of people at work: the shrike was observed to make a dash at the goldfinch, but was driven away: a little time after, however, he was seen pulling the captive through the wires of his prison, by the head: he was again driven off, but the poor bird was dead. A small steel mouse-trap, baited with the dead bird, soon secured the assassin, and he was soon after brought to me. The injured condition of the legs and tail bore witness to the boy's statement.—*Robert F. Tones; Welford, Stratford-on-Avon, November 5, 1849.*

Occurrence of the Pied Flycatcher (Muscicapa luctuosa) in Aberdeenshire.—In May of this year there was shot, on the edge of a plantation near to Brucklay Castle, in the adjoining parish of New Deer, a specimen of the pied flycatcher. It was alone, and was flying from twig to twig, but was heard to utter no cry. It was sent to Mr. Thomas Edward, Banff, by whom it was stuffed, and through whose kindness it is now before me. It is a male, and is a fine specimen. In its contour and general appearance it has a close resemblance to the first of the two figures of the pied flycatcher in the edition of Bewick's Birds of 1826; but in the white mark on the forehead, and in the distribution and arrangement of white on the other parts of the body, it is much more like the second figure, which he gives as a variety of the species. On consulting such ornithological works as are within my reach, I find that the appearance of the pied flycatcher, in the locality now mentioned, must be regarded as a very rare, or rather an unexampled occurrence. "We are not aware," says Sir William Jardine, "that it has been met with in Ireland, or in any part of Scotland." (Naturalist's Library, vol. xxiv. p. 220).—*James Smith; Manse of Monquhitter, Aberdeenshire, November 21, 1849.*

Note on the Pied Wagtail (Motacilla Yarellii).—My attention has been drawn to a fact which I believe is not at all generally known, viz., that in very old males, or perhaps males of the age of three years of this species, the black on the back is retained *perennially* in its full intensity. Those specimens which have a mixture, more or less, of blackish gray on the back, in winter, are either birds of the year or one or two years old, or else females. I have had an opportunity of examining a specimen to-day of a black-backed bird; and what I have advanced appears really to be the case, that the intense black on the back of old male birds undergoes no change of hue, either in winter or summer. Several specimens of the same kind have been since seen, and this circumstance has led to my suggesting the above proposition.—*Edward Hearle Rodd; Penzance, November 1, 1849.*

Occurrence of the Cirl Bunting (Emberiza circlus) and Black Redstart (Sylvia Tithys) in Norfolk.—I have seen one Norfolk specimen of the cirl bunting and two of the black redstart, all killed about three weeks since. Both these species are very rare visitors in this county.—*J. H. Gurney; Easton, Norfolk, November 22, 1849.*

Late Stay of the Swift (Hirundo apus) on the Southern Coast in 1849.—Three specimens of the swift were seen at Kemp Town, Brighton, on the 29th of October last. Single birds have, I am aware, been seen as late as November, but I never heard of three being seen so late. They were flying about the cliffs, in the same way as they are so often seen in July. I may add that the weather was particularly fine

and sunny, more resembling August than October.—*R. Wakefield ; Lower Clapton, November 5, 1849.*

Food of the Red Grouse (Tetrao Sooticus).—On opening the crop of a grouse, on the 5th of November, I found it to contain an immense quantity of matter, composed of the tender sprouts, buds and blossoms of the heath plant, and a few small leaves. The whole, when taken from the crop and placed in a scale, weighed three ounces good. The bird was shot, no doubt, while feeding: it was killed near Buxton, Derbyshire.—*J. M. Jones ; Montgomery, North Wales, November 8, 1849.*

Black Grouse (Tetrao Tetrix) in Devonshire.—A correspondent speaks (Zool. 2352) of the black grouse occurring in Devonshire and about Taunton as a circumstance worthy of record. I need only mention that several gentlemen residing on the Quantock and Blackdown ranges, within five miles of this town, have large numbers breeding on the waste parts of their estates, the *poaching* only of which, I apprehend, supplies our market.—*W. D. Crotch ; Taunton, Somerset, October 20, 1849.*

Packing of Partridges.—A correspondent (Zool. 2352) mentions his having met with a pack of partridges, about forty in number, which were very wild, &c. Now really, were it not that the writer, as an M.D., cannot be supposed to devote any large portion of his time to shooting, this would be unpardonable: this packing of birds is of constant occurrence in the winter months, especially where the country is wild and open, as every sportsman will avow.—*Id.*

Power of producing a White Chick.—During the last summer I spent a few days in Norfolk, and there I heard of a lady who asserts that she has the power of producing, from any egg of any bird (if sent to her fresh), a perfectly *white* chick. If I remember right, the story is that her mother on her death-bed imparted this secret to her, on condition of her never telling it to any one until she supposed herself to be dying, and then only to tell one person on the same conditions. Should you wish further information, I doubt not that you will obtain it in the neighbourhood of Diss.—*W. W. Cooper ; Rectory, West Rasen, November 5, 1849.*

Turnstone associating with Pigeons.—At Borobridge, in October last, an immature turnstone (*Streptilas interpres*) was shot out of a flock of pigeons,—certainly rather curious companions for it, and at such a distance from the sea.—*James C. Garth ; Knaresborough, November 19, 1849.*

Occurrence of the Bimaculated Duck (Anas glooitans) in the Fens of Lincolnshire.—Mr. Gardener, the well-known naturalist of Oxford Street, has just shown me a male specimen of this very rare duck, in a semi-adult state of plumage: the colour of the head is particularly varied, the immature and adult feathers being mixed in about equal proportions; the legs are bright orange, as stated by Mr. Selby, and not bluish gray, as in the female described (Zool. 2026) by Mr. W. R. Fisher; the bill is blackish blue. The bird was captured in a decoy, was in the flesh, and perfectly fresh.—*E. Newman ; December 1, 1849.*

Remarkable Act in a Duck.—A few years ago, when I was residing at Hornsey, I placed nineteen ordinary ducks' eggs under a fine Muscovy duck, who sat with great constancy. One day, after she had been off her nest, according to her daily wont, to feed and bathe, before she went on again she carefully passed the point of her bill over every egg, when, singling one of them out, she removed it in her bill to the distance of about three yards from the nest, broke it by a stroke of her bill, and then returned to her duties of incubation perfectly contented: the egg proved to be

addled. This spring I had an Antigua duck sitting on a little island in a pond at Selborne, and in the course of the period of incubation no less than three eggs were found floating in the pond, evidently removed from the nest by the duck, all of which proved addled. This in reply to Mr. Kennaway's query (Zool. 2456).—*Thomas Bell; Selborne.*

Occurrence of the Little Auk (Alca Alle) at Weston-super-Mare.—A specimen of the little auk was shot last winter at Weston-super-Mare, in this county,—surely far south for such an ice-loving stranger.—*W. D. Crotch; Taunton, Somerset, October 20, 1849.*

Great Strength and Courage in a Gannet.—"A servant of the Rev. F. I. C. Trenon, rector of Langton, observed on the 23rd ult. an unusual commotion among the swans in the Fleet, near Langton, which proved to be a battle between a gannet and two full-grown male swans, the latter both attacking at the same time, and following up the contest most vigorously with the former, who defended himself most resolutely for a very long time, and ultimately defeated the swans, beating them both off, and laying them prostrate, totally disabled, helpless, and seemingly seriously injured. The gannet, much exhausted by the protracted struggle, was easily caught alive, and very little the worse for fighting."—*Sherborne Journal.*

Occurrence of the Gull-billed Tern (Sterna Anglica) in Norfolk.—A fine specimen of the gull-billed tern was shot on the 31st of July, 1849, on Breydon, by Mr. Percy Bellin. Length, from the end of the bill to the end of the tail, 15 inches; bill $1\frac{1}{4}$ inch in length, from the end to the feathers on the head; nape, forehead and crown jet black; feet black; plumage above ash-gray; tail not much forked; breadth, from tip to tip of the expanded wings, 3 feet.—*John Smith; Great Yarmouth, November 25, 1849.*

[Perhaps the same mentioned by Mr. Gurney, Zool. 2569.—*E. N.*]

Occurrence of the Little Gull (Larus minutus) at Bridlington Quay.—Mr. Graham, when at Bridlington, a short time back, procured a specimen of the young of the little gull. It was shot near the town, about the 20th of October. It is now in the collection of the Hon. and Rev. S. Lawley. How little is known of the habitat of this elegant little bird! I cannot help thinking that it may turn out to be a southern species.—*Beverley R. Morris, A.B., M.D.; York, November 8, 1849.*

Occurrence of the Little Gull near Bridlington Quay.—A specimen of the little gull was recently shot at Auburn House, near Bridlington Quay, by Mr. Jones, the bird-preserver. It was hawking about in company with another.—*F. O. Morris; Nafferton Vicarage, November 19, 1849.*

The Masked Gull (Larus capistratus) in the Mediterranean.—On looking over some late numbers of the 'Zoologist,' I observed (Zool. 2457) some notes on the masked gull in the Mediterranean, by the Rev. C. A. Bury, on which I would beg to offer the following observations. I was at Gibraltar during the greater part of February of this year, during which time the only gulls I saw there were the common gull (*Larus canus*) and the black-headed gull (*L. ridibundus*): the latter especially attracted my attention, and passed often so close to me that I could not be mistaken as to its identity, more especially as it is a bird with which I am perfectly familiar. The number of this species appeared to increase about the beginning of March, at which time the weather was pretty mild. I cannot positively assert that the masked gull (*L. capistratus*) did not occur during the same period, but I certainly did not

once observe it. I may add that within the last two days I have observed several of the lesser black-backed gull (*L. fuscus*) in the Piræus, which is the only species here at present.—*Wm. Balfour Baikie; Athens, November 17, 1849.*

Occurrence of the Fork-tailed Petrel (Thalassidroma Leachii) in Norfolk.—A second specimen of the fork-tailed petrel has lately occurred near Yarmouth, having been killed on Caistor Beach on the 4th of this month (December). The former specimen was a male, the present is a female. The male specimen is decidedly the larger of the two, and the colouring and markings of its plumage are more distinct than is the case in the female.—*J. H. Gurney; Easton, Norfolk, December 8, 1849.*

Migratory Flights of Birds observed on the North Coast of Cyprus, during August and September, 1849.—

Date.	Bird.	Direction of flight.
August 25.....	First flight of herons.....	North.
„ 26.....	First flight of purple herons	„
„ 28.....	Second flight of herons.....	„
„ „.....	First flight of egrets	„
„ „.....	First flight of ducks	„
„ „.....	First flight of storks	South.
„ 30.....	Second flight of ducks	North.
„ „.....	Third flight of herons ..	„
„ „.....	A single hoopoe	South.
„ 31.....	Second flight of purple herons	North.
September 1.....	Third flight of ducks.....	„
„ 3.....	First flight of geese	„
„ 4.....	Fourth flight of ducks	„
„ „.....	Second flight of storks	South.
„ 8.....	Third flight of storks.....	„

The second flight of storks amounted to about three hundred, and the third was still more numerous: it contained a number of young ones, whose cries were distinctly heard: this flock, as it arrived just before dark, remained on the island all night. The species of ducks could not be distinctly made out, even with the aid of a glass, as they always flew very low and at a great distance. The hoopoe which I saw had just arrived from seaward: it was considerably exhausted; but after resting for about half an hour on a date palm, it again continued its southerly course. Rather later I noticed some large flights of swans, but I have unfortunately either mislaid or lost the dates. The first flights immediately preceded the first break in the weather, which took place about the 1st of September. I cannot exactly say whence the various birds proceeded which were flying northwards, but from their course they were no doubt going to different marshes on the coast of Asia Minor, or in the neighbourhood of Salonique, where many thousands are annually in the habit of wintering. More lately, on the 7th of this month, while in the gulf of Smyrna, I saw two large flocks of swans proceeding southwards, and thirty hours afterwards the first winter gale of the season commenced. About eight days previously, the first rain and thunder storm of the season was immediately preceded by several small flights of geese and swans.—*Wm. Balfour Baikie; Athens, November 17, 1849.*

Interesting Fact on some Alligators in the Gardens of the Zoological Society, Regent's Park.—The account of the lake of alligators in Scinde (Zool. 2611) brings to my mind certain observations I made upon some young alligators, which, some years ago, were in the collection of animals at the Zoological Gardens, Regent's Park. As nearly as I can recollect there were three or four of them, and they were from four to five feet long. They were located in a place which had been previously occupied by some aquatic birds, and which had a pond of moderate size immediately before it. The alligators were lazily basking in the sun, when one of the attendants, having a large birch broom in his hand, entered their habitation. They instantly started up and advanced towards him, opening their huge jaws, and then appeared to be exceedingly formidable opponents. The man, however, attacked them with his broom, and drove them into the pond, where they instantly disappeared. As I considered that they must ere long come up to the surface to breathe, I carefully watched the spot where I had last seen one of them; and after the lapse of perhaps five minutes, I saw something gradually rising above the surface of the water which looked exceedingly like the end of a branch of a tree. This ascended to the height of four or five inches, and then as gradually went down again, and wholly disappeared. Supposing this might be the snout of one of the alligators, I examined the surface of other parts of the pond, and quickly discovered another of these apparent branches of trees, which in like manner rose a few inches above the surface, and then went down again; and, by watching attentively the places of disappearance, I saw this process repeated a great number of times. As nearly as I can remember, the time the snout was above the water did not exceed three minutes, and it might be from six to eight minutes before it appeared again. The motion was so gradual that it was scarcely possible, even by the closest attention, to perceive it; and I was at the same time struck with what appeared to me to be rather an extraordinary circumstance, which was, that neither at the first appearance of the snout on the surface, nor on the final disappearance, was there the slightest disturbance of the water,—no ripple,—no circle, in short, nothing to prove that anything was either rising out of the water or going down under it. I was so much interested by these appearances and disappearances that I remained more than an hour watching them, and invariably saw the same results.—*John Williams; Royal Astronomical Society, Somerset House, December 6, 1849.*

Some Remarks on British Amphibia. By JOHN WOLLEY, Esq.

Triton Bibronii, Bell. Mr. Newman (Zool. 2576) hopes that his readers will express their opinions upon Mr. Bell's newt, *Triton Bibronii*. I find that I said (Zool. 2267), before the appearance of the new edition of the 'British Reptiles,' "But it is not only the *Lisotriton palmipes* of Mr. Bell that he has to re-establish in the new edition of his 'Reptiles:' it is to be hoped that he will give further characters of his *Triton Bibronii* and of *Rana Scotica*." At the time I wrote I had reason to suppose that Mr. Bell still believed in his

own *L. palmipes*, for he had not long before informed me that he had recently received some specimens of it; nor did I know that he had changed his opinion with respect to his *Rana Scotica*, of which I had the pleasure of sending him a number: at the same time I entertained little doubt that on seeing a series of them he would pronounce them to be a variety; for I had been unable to detect any specific difference, although I had no undoubted common frogs at hand wherewith to compare them. In the case of these two amphibians, Mr. Bell has avoided the necessity of giving further characters, by very properly cutting out the species altogether; but *Triton Bibronii* he still retains, without one word additional to the description in the first edition. The specific character is given as follows: "The same as *T. cristatus*, excepting that the upper lip is perfectly straight, meeting the lower and not overhanging it. The skin, and particularly that of the head, much more rugous and more strongly tuberculated. Colour darker." It is afterwards said, "The tubercle at the base of the inner toe on each foot is much smaller, and in some cases scarcely perceptible." Now there appears nothing in this description which will distinguish the *Triton Bibronii* from specimens of *Triton cristatus* found under stones or in other situations removed from water, or which have not long returned to the ponds in which they breed. It is the more remarkable that Mr. Bell should not recognize this fact, as he has confessed the error into which he fell with respect to *L. punctatus*, a species in his former edition distinguished from his *L. palmipes* by the very same character of the straight lip, so that the vignette which formerly was intended to point out the distinction between *L. punctatus* and *L. palmipes* now serves to show the seasonal appearances of the first species. This vignette, so similar to the one devoted to the heads of *T. Bibronii* and *T. cristatus*, must have suggested to our author the probability of a similar error in both cases. But we respect the feeling which may have prevented him from withdrawing a species whose name he had "chosen as a proper compliment to the first of herpetologists, and one of the most amiable of men." He acknowledges that with respect to *L. punctatus* and *L. palmipes* he was "led into error, by trusting that the accuracy of his lamented friend Bibron was absolutely infallible;" but that he should announce at the same time a second error of no less importance, from the same source, would have been too much for us to expect: nevertheless, it appears that Mr. Bell corrected the judgment of M. Bibron in this matter. M. Bibron declared that a bottled specimen which he found in the collection of the Zoological Society was *T. marmoratus* of Latreille:

Mr. Bell, having his attention called to it, said, "It is neither *T. cristatus* nor *T. marmoratus*, but shall be named *T. Bibronii*." In examining these, and many other kinds of animals and plants, species are only to be identified by a long study of individuals in every age, sex, season and situation. I am confirmed in the opinion I have expressed with respect to *T. Bibronii* by the experience of a gentleman living in the midland counties, who has devoted the most careful attention to the British newts. I believe I am correct in stating that he has hitherto, in that district of England, only met with the two species *T. cristatus* and *L. punctatus*. At the same time it is very possible that in other parts of the country there may be other species, as we know there is *L. palmipes*: all we say is, that if *T. Bibronii* be really distinct, we wish Mr. Bell had given characters by which we may recognize it.

Salamandra palmipes, Daudin. Without wishing to criticise too much the very pretty and useful work of Mr. Bell, I cannot refrain from remarking that the figure of the female "*L. palmipes*," of the new edition, is not at all characteristic. It would rather represent *L. punctatus*, from which indeed the female *L. palmipes* is not always readily distinguished. The principal characters, the shortness of the toes of the hind feet and the bluntness of the snout, are neither alluded to in the figure nor in the description; and no account is given of the less important differences of colour. I would wish, too, that something had been said of the very obvious distinctions in the skeletons of the two species; but where external characters are so marked, this perhaps was thought unnecessary in a popular work. It is not stated that the "lateral carinæ" are developed *in the skin*. The two upper ones are very remarkable, but I even question the existence of the lower ones, to which Mr. Bell alludes. Justice is hardly done to the peculiar reticulated style of markings, and to the three longitudinal zones of colour, which are so beautiful and characteristic.

Rana esculenta. Mr. Bell appears to admit this as a truly British species, without the slightest hesitation or warning to his readers. I have formerly expressed my reasons (Zool. 1821) for doubting its true claims; not that I would for a moment question the fact of Mr. Bond having found it at Foulmire, but only that I doubt very much whether it had been there for many years. Mr. Bell does not tell us whether he means that his father lived near Foulmire, by saying that he was a "native of those parts," or simply that he lived in the fens. Now, that the edible frog is not generally distributed in the fens I feel confident. I constantly examined the frogs in the fens of Cambridge-

shire and Huntingdonshire during three years, and I am sure that all I saw were of the common species: besides myself, they could not have escaped the notice of far more accomplished naturalists—such as Mr. Jenyns—who have passed a great part of their lives in the fens. Alas! I hear Foulmire is now drained: the subject ought to be most carefully searched into before it is too late.

J. WOLLEY.

Edinburgh,
November 30, 1849.

Observations on Salmon, and Suggestions respecting the Regulation of Salmon Fisheries. By the Rev. JAMES SMITH.

IN an extract in the 'Zoologist' (Zool. 2195) from Boccius, 'On Fish in Rivers and Streams,' there occurs the following passage:—"Salmon and grilse, when taken at the mouth of a river, are of different flesh and flavour to those taken up stream, the former being firm, brittle of flesh, and of large flake; but when taken in the latter the flesh is weedy, thin of flake, and wanting in fat."

It appears to me that this assertion is in terms far too general and unqualified, and that it refers to a matter on which there is a very common, but by no means an accurate, impression. The idea would seem to be widely diffused, that, when caught at the mouth of a river, and more especially still when procured from the sea, a salmon must of necessity be of the finest quality, provided that the fish is captured during that particular season when it is naturally in the highest condition; and, in like manner, there is an equally extended belief, that, when obtained a considerable way up the river, its quality will, as a matter of course, be very perceptibly inferior to what it would have been had the same identical fish been taken either at the mouth of the river or in the sea. Such, however, is by no means the result of my own individual experience; and my opportunity has not been small for making observation on this particular point. For many years I lived at the mouth of one of the Scottish salmon rivers,—the Dovern,—where the fishing is assiduously prosecuted in the river itself as far as a mile or two up its course, and where bag-nets are, also, regularly set in the adjoining bay, into which the river falls. And of two salmon, for example, taken in the sea at the same moment, from the same place, and having exactly the same outward appearance, it is by no means uncommon that the flesh of the one is pale, soft, destitute

of fat, and even with an earthy and unpleasant taste ; while that of the other is red, firm, full of fat, and of a flavour which is rich and highly agreeable. On examining, moreover, a large take of salmon, when newly hauled on shore, in the most favourable circumstances and at the most likely period, it will be impossible to say beforehand what particular specimens will be best fitted for the table and will display the peculiar excellencies of the fish in the highest degree. There are no doubt certain established marks which are found to characterize those salmon which have proved, on trial, to be of the very finest quality : these are a comparatively small head, a hog back, and a great depth from the highest point on the back to the corresponding point of the belly : it is, also, considered as an excellent sign when the skin, on being indented by the finger, returns with a spring, as it were, to its previous form and appearance : and when an experienced fisherman is requested to single out what he thinks likely to prove a fish of superior quality, it is principally by these marks that he would appear to be guided. Although however it but seldom, or rather never, happens that a fish turns out to be a good one which is destitute of these marks, it does not always follow that every fish which possesses them will on that account be of first, or even of second rate character. I have repeatedly seen that a specimen, which had been picked out with the greatest care from a large and newly-caught heap, and which had the above-mentioned marks developed to the greatest extent, was found, nevertheless, to be after all but of very inferior excellence, although served up at table only a short hour after it had been swimming in the sea. It is not indeed until the *cooked* salmon makes its appearance that the most knowing can tell whether or not it is of the finest quality : no sooner, however, does he look upon it in that condition, than a judge will be able, before he tastes it, to pronounce unhesitatingly as to its merits. When of the highest excellence, the flesh is of a bright and beautiful pink, its texture is without any appearance of seams, and is close and firm even to the eye ; and, when it is separated, it parts—not without resistance—into large and compact flakes or layers, with pieces of fat as white as milk lying thickly between them. Of all such salmon, the taste and flavour are very perceptibly different from those of specimens where the flesh, when boiled, is of a palish red,—where its surface is, as it were, seamed coarsely over,—where it falls, almost of itself, into thinnish flakes,—and where between these there is no white fat, but an oily and strongly tasted substance. And the only way in which, as I conceive, a distinction so striking can be accounted for between fish

having outwardly the same appearance, and caught at the same time and in the same place, is the supposition that, like human beings, salmon have each their individual constitution,—that this constitution, and consequently their state of health, may be affected in a thousand ways which are imperceptible to the eye of man,—and that upon its particular movements as to locality in the sea, and its success as to quantity and richness of food in that great magazine of nature, must depend the condition and the goodness of each particular fish at the moment when it is captured.

These marks, however, of first-rate excellence, of which we have been speaking, are found to vanish when the salmon in which they are present are allowed to remain in their natural state for but a very limited period; they will disappear even in the course of a day or two, although the fish may have been preserved amid the coolest materials, packed with the utmost care, and transmitted with all due expedition: and hence it should seem that the inhabitants of London can hardly be said to possess the opportunity of eating salmon in its most perfect state, unless a specimen of first-rate quality were to be transferred, with no intermediate stage, from the waters of the Thames to the vessel of the cook,—an event, I presume, which seldom or never takes place. Englishmen, indeed, who visit a Scottish salmon river, feel rather a dislike at first to what have been mentioned as the characteristics of the fish in its finest condition: they prefer it when it has been kept till the fat has melted into another appearance, and till the flakes are less hard and are becoming soft and oily. In the end, however, it is generally the case that they give in their adhesion to the belief and the practice of those who have been accustomed to regard what has already been described as the highest excellence in salmon.

M. Boccius says, that “when taken up the stream, the flesh of the salmon is weedy,* thin of flake, and wanting in fat.” This, however, is not always the case, and it depends very greatly on circumstances. When, indeed, the fish has continued for some considerable time in the fresh water, its flesh most undoubtedly falls off, both in appearance and quality: but, as it is the opinion of the most experienced and scientific ichthyologists that the salmon—when unimpeded by artificial obstructions—ascends from the sea with great rapidity, it is perfectly possible that specimens of the finest quality may be obtained

* *Weedy* flesh is an expression to which I am unable to attach a precise and definite meaning; but I suppose that the word is intended to intimate that the flesh is of coarse and flimsy texture.

even at the distance of thirty or forty miles from the mouth of the river, in which it is anxious—at as great a height as possible—to deposit its spawn; and this not unfrequently happens.

The *gray* salmon, or, as it is called by the fishermen on the Dover, the ‘bull trout’ (*Salmo Eriox*), is, in that locality, confounded by people in general with the true salmon, of which indeed it is considered by purchasers there as a flabby, ill-flavoured, and perhaps an unhealthy specimen. Such an opinion, however, arises merely from ignorance. It is not in consequence of ill health, but of the natural inferiority of its qualities, that the flesh of what is supposed to be the *common*—but is in reality the *gray*—salmon has such an indifferent character as an article of food. It is of a dull orange or buff colour, separates easily into flakes, and has an insipid flavour. Its character as a distinct species is not unknown to the fishermen, by one of whom I was furnished with a specimen, which was found to agree, in the minutest particulars, both with the figure and the description of the gray salmon, as they are given in Mr. Yarrell’s ‘History of British Fishes.’

Except on a few leading and incontrovertible points, such of the salmon fishermen as I have conversed with are beset with strong, and, as it would seem, with insuperable prejudices. Almost every individual has his own peculiar notions as to the genera and species belonging to the Salmonidæ,—as to the characteristics of those particular species with which they are themselves most especially concerned,—and as to the appearances which these put on at certain stages of their existence: every result which has been arrived at by methods the most unexceptionable and convincing, they will be disposed to laugh to scorn, unless it may happen to coincide—which it frequently does not—with their own preconceived and long-cherished opinions. Notwithstanding what has been so scientifically and clearly demonstrated by Mr. Shaw, of Drumlanrigg, I never spoke to one of them who did not scout the idea that the ‘parr’* is really and truly the salmon in the first stage of its growth. In like manner the

* The parr is known on the Dover by the name of ‘branlin,’—that is, brandling, —from the long and narrow brands or bands on its sides: these are about a dozen in number, are disposed vertically with spaces between them, and are of a beautiful purplish pale blue colour. As the young of all the genus *Salmo* have these bands, although not of the same form, it is likely that ‘branlin’ is a common and indiscriminate term.

'finnock' * (the *Salmo albus* of Fleming) was pertinaciously upheld to be a distinct species which never attained to a larger size; and, about a dozen of years ago or more, it was customary at Banff to fish, with small-meshed nets, for finnock and yellow trout, and to sell them at a penny or two pence the pound. The assertion that they were thus throwing away, in an early stage of its existence, one of the most coveted and valuable productions of the river, the salmon or sea trout (*Salmo Trutta*),—regarded by some as more delicate even than the salmon itself,—would have been answered only by an incredulous, and, it might be, a contemptuous smile. The conclusive experiments of Mr. Shaw, however, produced in course of time their proper effect upon the public mind; and the tacksman, uninfluenced by the opinions of his fishermen, gave orders at last that no finnocks should in future either be caught or sold.

It is believed that the peculiar character of the bed of a river, and also of the region through which the river flows, is not without a very material influence on the salmon by which it is inhabited. It has been even proved, and that in the clearest manner, that the particular periods at which the salmon go down to, and return from, the sea, are dependent greatly upon the warmth of the water in which they have been bred. These periods are decidedly different in different rivers; those in which the bottom or bed is of a rocky—and consequently a warm—character being the earliest, and those where the bottom is muddy and comparatively cold being the latest. Between the *run*, as it is called, of the salmon in one river and that in another, a very considerable period may thus intervene. It would, on this account, appear to be a dictate of common sense, that the salmon fishery in Scotland should neither commence, in all the rivers, on one and the same day, nor come to a close in a similar manner: each river should have a time peculiar to itself. At the same time, it is but fair that what is called the *close season* should be of uniform extent in every part of the country. Would it not, therefore, be an improvement on the present state of the law, as it regards the important subject of the

* In Part I. of the magnificent 'Illustrations of the British Salmonidæ,' by Sir William Jardine, there is a highly-finished and coloured representation, as large as life, of the finnock, or *Salmo albus*, which at that time—about 1838—was considered to be a distinct species. Had it continued to be so regarded, *albus* as a specific term would have been anything but appropriate, inasmuch as it is not nearly so *white* as the *Salmo Salar*, and some others of the genus. On the Solway it is called the 'herling.'

salmon fishery, if the legislature were to enact that the close time should be of the same absolute duration in every river, but that it should be observed in different rivers at different periods of the year? And might not the respective proprietors and the tacksmen be selected as the individuals most likely, from their local knowledge and from a regard to their own interests, to determine aright what periods would be best suited *as close time* to the various rivers in which salmon are to be found? To such periods thus determined upon there might then be given the sanction of the law, to have effect in all time coming, or at least until unforeseen or adventitious circumstances should point out the necessity, in particular cases, of a new arrangement, conducted however upon similar principles. This might probably put a stop to the well-founded complaints which are at present to be heard, that in one river the fishery is, by the law, brought to a close when the salmon are still in abundance and in excellent condition,—and that in another, perhaps, it is made to begin when scarcely any fish have made their appearance.

JAMES SMITH.

Manse of Monquhitter by Turriff, Aberdeenshire,
November 9, 1849.

*Extracts from the Correspondence of Mr. H. W. Bates, now forming
Entomological Collections in South America.*

THINKING some of the readers of the 'Zoologist' who are acquainted with Mr. H. W. Bates would like to hear how he is getting on in his rambles in South America, investigating its Natural History, more especially Entomology, I have the pleasure of sending extracts from several of his letters to me; and notwithstanding the many hardships he has undergone, his health continues most excellent, the climate fortunately being very delightful and healthy. Amongst the many charming things now received are several specimens of the remarkable and lovely *Hectera Esmeralda*, and an extraordinary number of beautiful species of *Erycinidæ*, many quite new, and others only known by the figures in Cramer and Stoll.—*Samuel Stevens*; 24, *Bloomsbury Street*.

“Parà, March 2nd, 1849.

“I get on very well with the Indians, being far more at home and friendly with them than with the Brazilian and European residents. The English people here, you will be sorry to hear, have not shown a disposition to assist us in the least all along, and I am now living with a Portuguese family, who treat me very kindly, and assist me in procuring all little things I need. At Carepi I lived almost entirely on coarse salt fish and cassara root for two months. Once I went hunting with the Indians: one day and night we were out in a little boat, threading noiselessly by moonlight through winding narrow creeks, with trunks of monstrous trees slanting over, and the broad leaves of the arborescent Arums in the swamps gleaming in the moonlight: we had five dogs, and, after a laborious day's work, returned with two pacas and a cutrà. The paca is obtained by a person entering the forest with dogs and driving it to the edge of the water, when others remaining in the boat shoot it. On returning, we had to pass over a part of the river clear of islands, ten miles wide, when there was a strong breeze and a heavy swell: we were as near as possible being swamped, the boat being very small and leaky and the sail heavy. I vowed I would never go excursions in Indian boats again; but still I enjoyed the trip, and got fresh meat for a week into the bargain.”

“Parà, March 16th, 1849.

“In the diurnal Lepidoptera the variety is endless: since the Mischief sailed, when my number was 600 species, I have added five new ones,—one a conspicuous new *Papilio* (not sent), another the largest *Thecla* I have seen, a third a *Brassolis*, &c. I have no doubt you think it must be charming collecting in such a country: it is, but there are many drawbacks: the heat of the climate, the foreign language, &c., I don't care about; but the tediousness of wandering through the same tracks in the woods day after day, at times scarcely seeing an insect for a mile or two, almost exhausts my patience. But the forest scenery is glorious beyond imagination: in some places every fifth tree is a palm, shooting up slender stems to a great height, and suspending their feathery leaves amongst the branches of still loftier forest trees: on all sides the city is surrounded by forest at the ends of the streets, there being no plantations in the neighbourhood; and the roads through it are very narrow, with the foliage over-arching them. Just now I find butterflies most numerous in the swampy

grounds; the small lovely Erycinidæ and Theclæ, which were numerous in the dry season in dry grounds, being now almost absent. In these swampy grounds sometimes I have a treat, seeing a great variety and number of handsome things flashing about,—the lovely Epicalias darting rapidly about, and settling frequently on leaves, but for an instant,—other species settling on the trunks of trees,—the Helicopes lazily flying, like the English gooseberry moth, and settling on the under-side of the monstrous leaves of Pothos and other gigantic Araceæ. The Papilios, Sesostris, &c., are sometimes numerous, settling on large yellow blossoms of a lofty tree, and are, I assure you, in such a situation a most lovely sight: then numbers of dusky Satyri are treading along over the carpet of Lycopodiums, or in the virgin forest over the dead leaves. It is by watching carefully the low bushes on the sides of the pathways that the rare and beautiful small butterflies are obtained.”

“Parà, June 1st, 1849.

“Mr. E. Doubleday has an erroneous idea of the appearance of this country and the habits of the insects, in recommending the searching of flowers for Coleoptera: there are naturally *no flowers* in the country, except a few parasites away up the lofty forest trees and the flowers of the trees themselves. What few flowers grow are in the open grounds, imported ones, and are very few; and, exposed as they are to the heat of a vertical sun, they scarcely ever contain a beetle. The whole country originally is a lofty uninterrupted and gloomy forest, without flowers and almost without sounds of life. When a bird's note disturbs the silence, the echoes startle one in one's solitary walks. Insects are found always sparingly flitting about in rays of sunshine which peer through the foliage: there being no flowers, they seem to feed on fallen fruit; and beetles only appear where there is timber felled or clearings: here I have found all the Longicornes, Buprestidæ and Curculionidæ, settled on logs and flying about them. The few Gymnetes are found eating leaves. I have collected at all hours from sunrise to sunset, and find that the time of day best for all insects is from 10 to 12, A. M.”

“Parà, August 2nd, 1849.

“Since I wrote by the ‘George Glen’ I have taken a trip to the town of Cametà, at the mouth of the Tocantins: it is situated very

different from Parà, being on a high dry bank, whereas Parà is on a low flat, almost level with the water in some places: I judged I might take some novelties there. The climate of the place and the hospitality of the people are most delightful; but the woods are not so thickly peopled with the objects of our pursuit as those in the neighbourhood of Parà. I filled some five boxes of insects in the six weeks I remained there, and noted about twenty new species. Whilst there I became friendly with the Vice-President of the province, Dr. Angelo Custodio Correa, one of the very few Brazilian gentlemen here of any intelligence or taste: he has travelled a good deal: by his assistance I got a passage in a large commodious vessel for the interior, belonging to his brother-in-law it appears. I shall have an opportunity to proceed on to the frontiers of Ecuador: the owner is commander and supercargo both, and tells me he shall have great pleasure in stopping at any place for a day or two, if I should wish to explore it. I fully expect that in about a week, on my voyage to the interior, I shall meet with many new species. We shall get along very rapidly: it is now the dry season, and every day a strong trade wind sets from the mouth of the river, and blows with steady force up the valley of the Amazons: for about 1500 miles with this wind the waters are tossed into waves, and squeamish stomachs are sure to be sea-sick. In some parts the river is not unlike the sea; the dark blue waters lash themselves into foam; in part of the view nothing is seen but water and sky, and in other parts merely a dark line of forest. Two species of cetaceans are common, rolling about the vessel, —one about fifteen feet long, which comes to the surface, makes a short grunt and disappears."

"Parà, August 30th, 1849.

"The present is probably the last collection you will receive from me of the productions of the lower Amazons. On Sunday, the 2nd of September, I expect to embark for the city of Barra, on the Rio Nigro, from thence intending to set out to some station further on, as may be deemed convenient and desirable. The *Mischief* sails in three or four days from this. Mr. Wallace and his brother have been gone to Santarem—half-way to the Rio Nigro, or rather more—about three weeks. My present collection is a small one, having searched for those species only which are new or sent sparingly before,—the greatest number of new things being taken at Cametá, and mostly unique. Notwithstanding the length of time we have spent in the

immediate neighbourhood of Parà, and the assiduity with which we have searched it, new things in diurnal Lepidoptera are constantly turning up: during the last seven days I have taken six species I never saw before. I have been miserably delayed in setting out for the interior: we were to have sailed towards the end of July, and it is only this week they began to load the vessel. Preparing has been a troublesome and expensive job; but when once on the water expenses will be trifling, and according to all appearances our life will be all unmitigated enjoyment. I should have liked a sympathising companion better than being alone, but that in this barbarous country is not to be had. I have got a half-wild coloured youth, who is an expert entomologist, and have clothed him with the intention of taking him with me as assistant: if he does not give me the slip he will be a valuable help to me. You can inform Mr. E. Doubleday that I can pair nearly the whole of the beautiful Papilios we find here: in the present collection you will find the glorious *P. Sesostris* mated,—the only instance in which I have found it *in copulâ*, although long suspected it: this makes five species now mated by actual detection *in cop.*, and I have strong circumstantial evidence against four others: one male with a round green spot on its fore wings has for its mate (I have no doubt) the splendid creature with an irregular greenish patch on its fore wings, and a crimson band with pearly lustre on its hind wings: I have seen them fluttering together, and always find them in the same locality very local and scarce. Another strong-bodied species (male), with wedge-shaped spot dusky white on fore wings, and a crimson band with bluish reflection on hind pair, is no doubt the male of a larger insect with similar markings,—spot of fore wings being rounder, and fore edge of hind wings having a white spot or two in a line with the crimson band: they are found in the same locality, which is neither the shade of forest (like most others) nor the open ground, but weedy and bushy old clearings. *Proteus* has for its female a species whose spot on fore wings is round and white, fringe of hind wings white, and crimson band of spots narrow: they are found in similar situations. In *Mechanitis* I have found two species *in copulâ*, which you have already received, ticketed accordingly: there is scarcely any difference between the males and females, and I think this is the case throughout the *Mechanites*. In the present collection is a long series of a handsome species, of two very different varieties,—whether male or female I have had no opportunity of detecting: I have reared them from the same caterpillar: the variety you will see is only a substitution of one colour. I think that the *Mechanitis* with

one transverse black stripe on hind wings is not of the same sex with the other without the transverse stripe, and that there are many species of these. I have mated a great many *Eurygonæ*, not from observation *in cop.*, but from markings on the under-side: the furred fore legs of males, in all *Erycinidæ* which I have examined, and naked ones of females, gives a good character for the sexes; and in *Eurygonæ*, with similar markings of under-sides of the two sexes, is a good guide in appropriating the females to their right partners. I have persevered with these *Eurygonæ* much; they will readily be mated. In other genera of *Erycinidæ* I have not yet noticed much difference in sexes, neither in *Theclæ*. You will find amongst the *Coleoptera* a fine series of two species of *Inca*—the *clathratus* and *bifrons*: the former I suppose is common in collections, but the latter I see by the British Museum Catalogue is not at present in the British Museum collection."

Names of Insects.—In consequence of the multitude of new, and frequently ephemeral names, which are introduced into your miscellaneous periodical, I wish you would impress upon your correspondents the necessity of stating the *family* to which every new subject belongs: this is a most essential addition to render the past intelligible and the future useful; for if a man in London finds himself at fault, how is it possible for the humble admirer of Nature in the country—without books or collections for reference—to guess at the localities and data of half the insects recorded in your useful pages?—*J. Curtis*; 18, *Belitha Villas, Barnsbury Park, November 19, 1849.*

[*Mr. Curtis* is not alone in experiencing this difficulty: the new names occur in *Lepidoptera* only, and their non-occurrence in any British work on Entomology is a sufficient proof of the want of a synonymic list of this class of insects. *Mr. Doubleday* has now supplied that want, as will be seen by the advertisement on the wrapper of the December number.—*Edward Newman.*]

A new mode of setting up Micro-Lepidoptera.—Some years since I saw at the British Museum a collection of *Micro-Lepidoptera* received from Germany, each moth being stuck into a strip of elder pith, and the upper part of the pin cut off close to the insect; but they were rendered unsightly by the large pin put into the other end of the pith to fix them in the box, and they also occupied a large space. I found also, on trying the plan, that there was another objection: the pins had no hold in the pith, so that the moths did not maintain their position and the stage itself moved about. *Mr. Stainton* rendered his insects secure by fixing each on a round piece of cork covered with paper, but the other objections still remained. I have now adopted a plan which obviates all difficulties; and besides, as for some years to come our *Micro-Lepidoptera* are likely to be in a transition state of arrangement, this mode offers great facility for moving,—an operation which, under the old method of sticking the pins into the cabinet direct, ensures the breaking of many specimens. I take a sheet of cork, one-seventh of an inch thick, cover it with paper, and cut it into strips

about one-eighth of an inch wide and as long as necessary: upon each of these I place as many specimens of a species as are required, cut off the pins nearly close to the specimen with cutting plyers, and then fasten the whole into a cabinet by a small pin (No. 10) at each end, the lower pin serving also to hold the label. Another incidental advantage of this mode is the facility afforded for examination with a lens or microscope, there being no long pin in the way, and no risk in removing from or to the cabinet.—*J. W. Douglas*; 2, Eton Grove, Lee, December 13, 1849.

Grease in Lepidoptera.—In my cabinets I have had this great enemy much worse than in the generality of collections (more than a third of my insects being affected), and I am quite puzzled as to the cause of its being so bad, as the cabinets are in a very dry situation, against a partition wall, and the room in which is the one containing the diurnal Lepidoptera (but which are affected quite as much as the Noctuidæ) has a fire in it daily during the winter, so that damp cannot be the reason of it. The drawers of all the cabinets (except one, which has the bottoms of the drawers made of deal) are made of cedar, and the fronts of all are rosewood. I am told it is on account of the drawers being made of cedar that the insects are so subject to the grease: if this is so, is there any chemical preparation which could be applied to the drawers to destroy the effect of the cedar on the insects? Could any entomologist give me some information or advice on these points, I should feel obliged.—*H. Tompkins*; School Hill, Lewes, Sussex, November 27, 1849.

[My correspondent is mistaking the resinous exudation of the cedar for grease. In this case there is no remedy; but I consider the following advice, from a book which I hope is in the hands of every entomologist, a sufficient caution. "A well-made cabinet is of the greatest importance, and is not to be obtained without some difficulty: every cabinet-maker will at once take your order, but what is called tradesman-like acumen will prevent him doing you justice. Many parts of a cabinet are not visible from the exterior, and it is almost impossible to persuade a tradesman to use good or seasoned wood for those parts not in sight; it is therefore absolutely necessary to inspect the work while in progress, to examine the wood, and ascertain that it is thoroughly seasoned: if the wood retains any sap it is of no use, as it invariably warps, and thus prevents the drawers from moving, and the cabinets become useless. *Nothing but the best mahogany must be used: a great variety of wood has been tried, particularly a kind of resinous cedar, which has a colour and grain much resembling mahogany, but which is far worse for cabinets than the most resinous deal: after the cabinet has been a short time built, it will become saturated with resin, and all the insects it contains will be speedily spoiled.* Other cheap woods are also much in use, and are veneered in front with mahogany, and the parts which are exposed on taking out a drawer are smeared over with a brownish composition, to keep up the deception." *Familiar Introduction to the History of Insects*,* p. 120.—*E. N.*]

Occurrence of Colias Edusa and C. Hyale in the Isle of Wight.—Having noticed the communication of my friend Mr. Bond (Zool. 2612) relative to *Colias Edusa* and *C. Hyale*, and also the notes (Zool. 2546 and 2583) in respect to the septennial appearance of these interesting subjects of observation, I think it is due to Mr. Desvignes to state that—during many years of close attention—I never noticed so abundant an appearance of *Colias Edusa* as that which occurred on the south side of

* Van Voorst, Paternoster Row

the Isle of Wight during the present season. From the 15th of August to about the 15th of September, myself and two of my sons captured no less than 150, including four specimens of the white variety, *Colias Helice*. We captured (as stated by Mr. Bond) only four specimens of *Colias Hyale*, and saw but one other: these all occurred in the middle of September, and were in the most perfect condition. I am the more induced to send this communication in consequence of my not having met with any other entomologist at the time and place I have mentioned, and from the circumstance that the numerous captures made by us were effected on extremely difficult ground. We frequently observed three or four of these insects on the wing at the same time; and had the ground been favourable, I have no doubt that we might have taken, within the period which I have stated, at least 300 specimens.—*N. B. Engleheart; Blackheath Park, November 7, 1849.*

Occurrence of Clisiocampa Castrensis at Rye.—I found the larva of this insect in great abundance on sallows in the marshes, last May. The cocoons I found attached to a water-plant with very broad leaves, resembling the dock, in June. I bred a great many from the cocoons, but none from the larva state.—*J. B. Ellman; Lewes, December 10, 1849.*

Remarkable Instance of the Late Appearance of Smerinthus Populi and Plusia Gamma.—On the 7th of the present month I bred a specimen of *Smerinthus Populi*, and another on the 13th, both males and very finely marked; and on the 16th, a female of the same insect. The cage from which these specimens were hatched is placed in the window of a room where no fire is kept. Also, on the 8th, a very fine specimen of *Plusia Gamma* was captured in our garden.—*A. F. Sheppard; Arundle House, Fulham, December, 1849.*

Habits of Cerigo texta.—When rambling over the sand-hills at Lytham, one evening in the month of July, in company with my friend Dr. Nelson, I was surprised to see this insect—which has hitherto been considered rare—flying in great numbers. They appeared to be as abundant as the common *Hepiali* are in many localities; but owing to their dark colour, and their habit of travelling close to the ground, were not easily distinguished. Dr. Nelson has taken thirty specimens in one night, and might have captured many more: he states that they appear in the month above mentioned,—fly after the manner of *Hepialus Lupulinus* when in search of the female,—are seen just at dusk, very near the ground, and flying against the wind.—*Robert Gray; West-end, Govan, December 10, 1849.*

● *Occurrence of Epunda Lichenea at Lytham.*—Early last September, assisted by my friend Mr. Gregson, I captured upwards of one hundred specimens of this hitherto rare *Noctua*. Having by accident found one at rest, by means of a lamp, on the common furze, I looked more closely and found several. A peculiarity was, that they rested on the dead part of the bush, and were very inactive. My friend and I took upwards of twenty one night by this means; but only got one rubbed specimen at sugar, although I tried several nights in the same locality. I bred several from larvæ I had taken in June, the imago appearing early in September. I have heard of its occurrence in the south a month later, a circumstance difficult to account for.—*C. Nelson, M.D.; Lytham, December 17, 1849.*

Proceedings of the Zoological Society.

Monthly General Meeting, December 6, 1849.—W. SPENCE, Esq., F.R.S., in the chair.

Lord Arthur Hay, Major-General Kenah, Mr. H. Huth and Mr. G. L. Neighbour were elected Fellows.

Evening Meeting, December 11, 1849.—R. C. GRIFFITH, Esq., in the chair.

The Secretary communicated to the members present that—by letters dated November 16 and 21—the Hon. C. A. Murray had informed him of the safe arrival of a young living hippopotamus in Cairo, which had been presented to the Society by His Highness the Viceroy of Egypt. This most valuable and interesting gift was accompanied by a beautiful lioness and cheetah; and Mr. Murray had been further assured by His Highness that a party of his troops were still out on the White Nile, charged with the duty of securing a young female hippopotamus, which was also destined for the Society. The liberality of the Viceroy is only exceeded by the earnestness of Mr. Murray's support to the Zoological Society, who are already very largely indebted to his influence for many very valuable additions to the menagerie.

The Secretary further stated that he had received letters of interest from Mr. Duncan, Her Majesty's Vice-Consul at Whydah; and from Mr. Grace, Her Majesty's Deputy Judge-Advocate at Jaffnah, in Ceylon; from both of whom collections of living animals may be expected in the spring of 1850.

The papers read to the Meeting were,—1. "Description of a New Genus and of several New Species of Terrestrial, Fluvial and Marine Mollusca, inhabiting New Zealand;" by J. E. Gray, Esq., F.R.S., &c. The shells described in this paper were sent to the British Museum by Major Greenwood, and are named *Nanina Celine*, *N. Mariæ*, *N. Tallia*, *N. Erigone*, *Helix Dunnæ*, *H. Greenwoodii*, *H. Portia*, *H. Ida*, *H. Egesta*, *Zonites Chiron*, *Z. Coresia*, *Bulimus Leimonias*, *Cyclostoma Ægea*, *C. Cytora*, *Latia* (n. g.) *neritoides*, *Lamellona Ophione*. 2. "On the Animal of *Geomelania jamaicensis*, Pf.," with a drawing; by A. Adams, Esq., R.N. 3. "Descriptions of *Panopæa japonica* and *Tellina casta*," two new species, from the cabinets of the Zoological Society of Amsterdam and Mr. Cuming; by A. Adams, Esq., R.N. 4. "Description of *Thracia magnifica*," a new species, in the cabinet of Mr. Cuming; by Dr. Jones, of Hamburg. 5. "Description of *Platycercus* (*Psephotus*) *citrinovenstris*," a new species, allied to *P. hæmatogaster*; by J. Gould, Esq., F.R.S. 6. "On the Anatomy of the Indian Rhinoceros (*Rh. unicornis*), deduced from the Specimen recently living in the Gardens of the Society;" by Professor Owen, F.R.S., F.Z.S., &c. The second part of this paper will be read on the 8th of January.—D. W. M.

Proceedings of the Entomological Society.

December 3, 1849.—G. R. WATERHOUSE, Esq., President, in the chair.

Mr. Stainton stated, in allusion to the latter portion of the minutes of the preceding meeting, that it was his own intention to offer the first three volumes of the 'Linnæa Entomologica' as a prize for the *second best* monograph of Tortrices.

The following donation was announced, and thanks ordered to be given to the donor. 'The Zoologist' for 1849, July to December; by E. Newman, Esq.

Mr. Stainton exhibited some specimens of *Tinea ferruginella*, *Hbn.* (*ustella*, *Haw., St.*), taken in a coal-mine near Glasgow, by Mr. Scott [*Zool.* 2633], and remarked that it was not a little singular that—though bred in the dark—the specimens were very brightly coloured.

Mr. Westwood exhibited a box of exotic Coleoptera, from the collection of A. Melly, Esq., containing a further series of Australian *Pselaphidæ*, a Brazilian species of *Articerus*, and several Australian species of *Cryptodus* and allied genera.

Mr. Westwood also exhibited specimens, in all its stages, of *Baridius trinitatus* (*vestitus*, *Schönherr*), an American species of weevil, about the size of *Calandra granaria*, which had been communicated to him by Mr. Josiah Forster, having been observed by Miss Morris, of Germantown, to attack the potatoes in America to such an extent as to have led to the belief of its being the real cause of the potato disease. The eggs are deposited in the leaf buds; and the larvæ, as soon as hatched, burrow into the stems, within which they feed, descending to the root and causing the decay of the plant. Messrs. Westwood, Stephens and Waterhouse, said, that of course this insect was not the cause of the potato disease, but the fact was certainly interesting; the identical *species* *trinitatus* not being British, the species of the *genus* *Baridius* being rare in this country, and none of them frequenting the potato.

Mr. Shepherd exhibited a magnificent series of *Peronea Hastiana*, *L.*, bred from larvæ and pupæ found in willow leaves, in the neighbourhood of London.

Mr. Saunders read a paper on a species of *Hestheis* and *Agapete carissima*, *Newm.*

The President announced that a book had been sent to him, and was on the table, in which any gentleman who wished to become a promoter of the great exhibition of the works of industry of all nations was requested to sign his name.—*H. T. S.*

Proceedings of the Microscopical Society of London.

Abstracts of the Papers read November 14th [See Zool. 2636].

A paper "On the Growth of Grass," by S. W. Leonard, Esq., was read. After some preliminary observations, he stated that about three years ago his attention was called to this subject, by observing that some grass—which was in a vessel in which he kept some animalcules—increased in height very rapidly, one shoot which he measured having grown as much as an inch and a half in twenty-four hours. He consequently thought that, by proper management, he might possibly be enabled to see it grow under the microscope. Being prevented at that time by other avocations from pursuing the subject, he was unable to verify his idea until July last, when, having procured a turf of the common meadow-grass (*Poa annua*), he manured it, and then found it grew at the rate of an inch or more in twenty-four hours. One of the young stems, with its root, was placed in a small test-tube, which being properly adjusted under the microscope, he had the satisfaction—with a power of 400 diameters—of seeing it traverse the field of view. At first no motion was perceptible; but in about half a minute the point darted forwards considerably, and after remaining stationary

for a short time it again made a spring forwards, and so on at short intervals until it had entirely crossed the field. This was repeated several times, with the same result. Suspecting, however, that this mode of progression by starts could not be natural, he made some alteration in the arrangement, and then found that the motion forwards became gradual and equable. The field of the microscope included rather more than $\frac{1}{100}$ th of an inch, and the apex of the grass traversed the whole diameter in somewhat less than ten minutes. In reference to the mode of growth of this part of the plant, he stated his opinion that a gradual expansion and elongation of the cells takes place, causing the increase both in the length and breadth of the blade, but that there might also be additional cells produced near the root, which cells may be gradually developed and matured in the stem during its growth: this he was inclined to think was actually the case, because the outer edge of the grass was serrated at regular distances. When the upper surface or cuticle was brought into focus, certain more or less hexagonal cells, coated with a very thin layer of silica, became visible: this outer covering, however, does not appear to undergo the slightest change during the progress of the growth: the serrations also appeared to cover the whole surface of the grass. Hitherto he had been unable to observe the development and growth of cells near the root, his attention having been more particularly directed to the apex of the blade, the pushing forward or growth of which he considered to be occasioned not by the before-mentioned expansion or elongation of the terminal cells, but by the addition of new matter to the base of the blade.

Another paper, "On the Structure of the Siliceous Loricæ of the Genus *Arachnoidiscus*," by George Shadbolt, jun., Esq., was read. The author commenced by giving a general account of the *Arachnoidiscus*,—which name was given to the object under consideration by Mr. Deane, in consequence of the close resemblance of its markings to a spider's web,—and then proceeded to detail his own observations on the subject. These shells, although closely resembling bivalves, are not, in his opinion, strictly so, but are more properly speaking multivalves, each shell consisting of two circular discoid portions and two annular valves, exactly similar respectively to each other. Each of the discoid valves is capable of further separation into two circular, but dissimilar, portions: this separation is exceedingly difficult to accomplish. Mr. Shadbolt had, however, succeeded so far as to satisfy himself that the discoid portions are thus composed, which may also be verified in another manner which he subsequently described. The disks are composed, *first*, of a very thin membrane, having on it the web-like markings before alluded to, which membrane is situated internally; *secondly*, of a siliceous framework, well adapted to support and strengthen the outer membrane. These portions he was able to obtain separately, by boiling them in nitric acid; but it was in a few specimens only that the separation was effected, and it very rarely occurred that the siliceous framework was obtained entire. He then described the mode of manipulation under the microscope, before alluded to, in which, being viewed as opaque objects, the structure of the shells may be demonstrated to be as he stated. When examined in this manner, there also appears to be a central opening in each disk, which, when *in situ*, is partially covered internally by a delicate cup-like process, so as to form a species of valve: this frequently prevents the opening from being satisfactorily shown, and hence some doubt has arisen as to its existence. The author then proceeded to offer various suggestions as to the uses of the several parts. The paper was illustrated by accurate drawings of the parts described, made by Mr. Legg.

December 12, 1849.—GEORGE BUSK, Esq., President, in the chair.

A paper by Cornelius Varley, Esq., entitled "Microscopical Observations of a Malady incident to many common House Flies," was read. It is by no means uncommon to see flies attached to the glass of windows and other objects by the proboscis; the glass in their vicinity appearing, at the same time, dim, or as though it had been ground. This appearing somewhat remarkable, Mr. Varley was induced to devote some attention in order to ascertain if possible its cause. He considers it to be occasioned by a peculiar disease which first shows itself at the end of the proboscis, which becomes moist and glutinous; and the fly, touching the glass with it, becomes fixed, and shortly after dies. After a short period, a kind of efflorescence appears upon the abdomen of the fly, which is rapidly followed by the evolution of the matter which dims the glass. By careful watching, Mr. Varley was able to obtain the flies immediately after their having fixed themselves and died, as before mentioned; and upon examining them under the microscope, he found that for about half an hour there was no perceptible change, but after that period the divisions between the scales of the abdomen began to put on a white appearance, due to the production of myriads of round-headed cylinders, which after a short time became elongated, their tops began to swell and become pointed, there being also a constriction at about one-eighth of the whole length from the top, giving the appearance of a short neck, within which there seemed to be a kind of diaphragm. Another of these diaphragms appeared at some distance below, and the intermediate space was filled with granular matter. The circulation was seen going on rapidly within the head. After a short time these heads were forcibly driven off in all directions. They appear to be very glutinous, and adhere to whatever they touch; and the dimness of the glass, before mentioned, is due to a vast number of these objects being projected against it. This plant is produced so rapidly, that no more than three hours elapsed between the death of the fly and its coming to maturity. By immersing the fly in water, Mr. Varley found that the mode of growth of the fungus was altered, the heads being no longer produced, but the whole plant became long, crooked and filamentous.—J. W.

Yorkshire Naturalists' Club.

November 7, 1849.—O. A. MOORE, Esq., in the chair.

The following gentlemen were, on the recommendation of the committee, elected honorary corresponding members: Messrs. Henry Denny, of Leeds; Henry Baines, of York; and William C. Williamson, of Manchester.

Dr Morris read to the club a resolution passed by the council of the Yorkshire Philosophical Society, and which had recently been communicated to him, expressing the council's gratification at the formation of the Yorkshire Naturalists' Club, and assuring the members of its hearty co-operation in their laudable objects. Much gratification was expressed by the members of the club at the very satisfactory and kind feeling exhibited in the resolution.

Mr. Graham reported the occurrence in Yorkshire of the following rare birds:—The ash-coloured harrier (*Circus cineraceus*) near Escrick, about the 15th of October. The marsh harrier (*Circus rufus*), early in October, at Wassand. The peregrine falcon (*Falco peregrinus*) was sent to him in the flesh yesterday, having been obtained

in the neighbourhood of Market Weighton: it is an adult male. A specimen of that very rare bird, Tengmalm's owl (*Noctua Tengmalmi*) was shot about two years ago at Hunmanby, by Admiral Mitford's keeper. A young specimen of the little gull (*Larus minutus*) was shot at Bridlington Quay, about the 20th of October. Mr. Graham exhibited the whole of the above specimens except the second.

Mr. Baines showed a very interesting specimen of a pear which had thrown out leaves from the side, and which also seemed to have made an effort to produce a stem. This curious production was obtained this season from Scoreby.

The Chairman exhibited specimens of the common southernwood (*Artemisia Abrotanum*) in flower, obtained in St. Cuthbert's churchyard, in this city. He remarked that this plant, which so rarely flowers in this district, has, in that particular spot, flowered regularly for some years past.

A paper was then read by Dr. Morris, "On the power that certain Water-birds possess of remaining partially submerged in Deep Water." Dr. Morris first showed that diving-birds possess a wonderful power over their own specific gravity in the water, and brought as proofs records of the habits of various birds, which had been made by others, without reference to any particular theory, but simply as facts in the history of the birds. He then considered the explanation which is usually given of the phenomenon, viz., that the bird expels so much air from its body as to bring its body to nearly the same specific gravity as water. This he brought several arguments to disprove; some from the anatomical character of the air-cells, and others from the impossibility of the bird remaining unsuffocated with such a diminished quantity of air. He then brought forward his own explanation of the fact, which was, that the bird so compressed its body as to condense the air in the various cavities to such an extent as to remove its power of floating on the surface of the water. He first showed that if air was condensed into any vessel, the floating power of the vessel was diminished, compared with the same vessel filled with air at the ordinary atmospheric pressure. He then proved, by quotations from Audubon's 'American Birds,' that various birds could, and did, voluntarily compress their bodies into less than one half their usual bulk; and, lastly, he showed that the paper nautilus obtained its power of rising and sinking in water by a modification of this plan. Some further observations concluded the paper. Dr. Morris exhibited several diagrams to illustrate his meaning.

A discussion then followed, in which Messrs. Baines, Graham, W. Matterson and the Chairman took part. Mr. Baines thought it might be explained by the action of the birds' feet in the water, in striking up instead of down. The other gentlemen generally were disposed to agree with Dr. Morris's explanation.

Some general conversation was then carried on, after which the members separated.

December 5, 1849.—EDWARD CHARLESWORTH, Esq., in the chair.

A highly interesting memoir of the late Mr. Samuel Gibson, of Hebden Bridge, was read by the chairman.

Mr. Smallwood next brought forward a communication from J. Leckenby, Esq., of Scarborough, in which he mentioned the curious fact which he had noticed of a certain shell, which was abundant in a particular locality, having, after the lapse of two or three years, without any apparent cause, entirely disappeared, its place being supplied by a distinct but allied shell, which had previously been extremely rare in that district.

Mr. Graham exhibited a nest and three eggs, which he believed to be those of the siskin, and which were obtained near Haxby. The nesting of this bird in England is an extremely rare occurrence. He also exhibited a wild duck, which was evidently a hybrid between the mallard and the pintail, obtained on the estate of H. Preston, Esq., at Moreby, near this city. He placed on the table, at the same time, a light brown variety of the blackbird, which he had preserved for the Rev. J. Preston, of Askham.

An account was then read by Dr. Morris of a very extraordinary animal, which was caught in a trap, a few days back, at Moreby, and which had been sent by Mr. Preston to Mr. Graham for preservation. This curious animal presented the general appearance of one of the Mustelidæ or weasel family, but possessed feet which were very long, bare of fur, and completely webbed, like an otter. Dr. Morris considered the various probabilities of its being a mere variety of one of the weasels; of its being an entirely new animal; and of its being a hybrid between two of the Mustelidæ. Dr. Morris's opinion was in favour of the last supposition, and he referred to the union of the otter and founmart. He had examined the fur of the animal with the microscope, and found it to agree much more nearly with the down of the founmart than with that of either the stoat or marten, which were the only ones of the Mustelidæ that he had had an opportunity of examining. The following is a description of the animal, which was a young male, probably about half grown:—

Body elongate, vermiform, but fuller than that of the stoat. Feet rather long, quite bare of fur, and completely webbed down to the claws, which are sharp but rather short. Ears large and spreading, quite bare, and with a large, bare, oval, reddish patch in front on the side of the head. Margins of the ears brown (white in the stoat, founmart and marten). Tail with short fur at the root, but nearly bare after the first two inches, rather flattened and tapering to a fine point. Teats three on each side. Fur of only one kind, namely the under fur or down, and entirely without the usual long hair, which is so conspicuous in all the Mustelidæ: it was, however, thick and compact, though very short, being about as long as that of the mole, and much of the same texture. Colour above, reddish fawn. Belly pale yellow, with a reddish yellow band down the centre, very conspicuous, and giving a branch down the inside of each leg. The weight was eleven ounces, but, when fresh it would probably have weighed quite twelve ounces. The following are its admeasurements in inches and lines.

	in.	lin.
Length of head and body.....	10	6
Head	2	6
Tail.....	4	6
Middle toe and claw	1	0
Ear	„	6
Ear across	„	10
Width of head	1	3

This account excited much interest among the members, and a conversation followed in which most of those present joined. The meeting broke up shortly after ten o'clock.

Singular Recipe for creating Silkworms, a Fact for the Vestigians.—Having lately met with a very odd account of the mode of producing silkworms, I take this opportunity of forwarding it, thinking it may afford some amusement to the readers of the ‘Zoologist,’ and also be considered curious as affording some insight into the entomological knowledge of our ancestors. The article is contained in a work called ‘The Laboratory or School of Arts,’ by G. Smith, 8vo, 1750: this was the third edition of the book, so that we may suppose it was held in some estimation: it contains a number of recipes in refining, &c., of metals; choice secrets for jewellers; experiments in casting in various ways; glass-making; valuable secrets for cutlers, &c.; the art of preparing rockets, squibs and crackers; various uncommon chemical experiments; the art of dyeing, &c., &c.; and is said to be compiled from the German and other foreign authors. At page 237 we have an article entitled “Of the Generation of Silkworms out of Veal,” the process for doing which is as follows:—“Take about ten or twelve pounds of veal, all meat without bones, warm, and as soon as it is killed; chop this with a chopping-knife as fine as you can, and afterwards put it into a new earthen pot, thus: at the bottom make a layer of mulberry leaves, then a layer of veal, and thus proceed till your pot is full. Then cover the top with mulberry leaves, and take an old shirt which has been well worn and sweated in by a labouring man; put this at top upon the leaves, and then tie the pot close with leather. After this is done set the pot into a cellar which is not too cool, but something warm and damp; let it stand for three or four weeks, till the veal turns to maggots, which happens sometimes sooner sometimes later, according to the nature of the place into which you put it. Of these maggots take as many as you will, and set them upon fresh mulberry leaves, which they will eat, change their form to silkworms, will soon content themselves with that nutriment, and spin and generate like other silkworms. I have produced them twice, not without the admiration of the late Mr. Sturling, and yet I am of opinion that this generation is not of both, but only of one kind; and the same opinion I have of toads or frogs which are produced out of barren earth. The time wherein silkworms are to be raised is in the beginning of July to the eighth of that month, when the process is to begin. Vida, in his second book of Silkworms, teaches, if a young ox is fed with mulberry leaves, that out of his body after he is killed will grow silkworms.” Reference is then made to a note, which says, “Since the publication of the second edition we have met with an authentic account, in the Breslaw Philosophical Collections, of a process made by Dr. Lanckish, physician at Lignitz, in Silesia, in the most nicest (*sic*) manner; but after having tried various experiments, for several summers successively, he never could produce any real silkworms, but the putrefaction of the veal he has prepared, according to the directions given above, turned first into large maggots, and having spun themselves into crysolites (*sic*) they became afterwards beautiful large flies. But as the above account is attested by several credible authors we would not omit it in this edition, for the further search and enquiry of the curious.” There are several other recipes of the same kind in the book, relating to the generation of eels, serpents and crawfish, and also a mode of regenerating plants; all equally curious and equally certain.—*John Williams; Royal Astronomical Society, Somerset House, December 6, 1849.*

Atherix Ibis.—With regard to Sir Oswald Mosley’s interesting observations (Zool. 2586) on the economy of this insect, I may observe that a similar cluster of them was sent to me many years since, comprising both sexes,—and it is remarkable, but they were principally males; whilst another conglomerated body of them, completely

concealing the catkins of the alder, to which the flies were attached, consisted entirely of females. It is greatly to be regretted that good drawings were not made of the larvæ, so little being known of many insects in that stage of their existence; and, from the slight description given, it appears to me not quite certain whether the eggs had been laid by the *Atherix* or some Neuropterous insect.—*John Curtis*; 18, *Belitha Villas, Barnsbury Park, December, 1849.*

[It is many years ago—in fact in 1833—that I was first attracted to the vast clusters of *Atherix Ibis*, which occur under bridges and on twigs of half-submerged willows, in the district of Leominster, in Herefordshire: these clusters were generally purse-shaped, and contained many thousands of this fly, the whole of them females: nearly all were dead, but a few on the outside of each cluster still retained life; and on carefully watching one of these clusters, I found that it continually received accessions by new comers settling upon it. Year after year I have renewed this observation, but I believe I have never before published anything on the subject, always deferring it in the hope that I might acquire a better knowledge of the object of such extraordinary associations.—*Edward Newman.*]

On the Abundance or Scarcity of the Wasp.—The Rev. Mr. Bree's communication (Zool. 2614) has naturally induced me to reflect upon the circumstances dwelt upon in his paper, namely, the scarcity or abundance of the common wasp: it were a remarkable fact in the history of insects that the abundance of parents naturally resulted in a scarcity of offspring, and *vice versa*. That such results may happen I am quite willing to believe, but that such is an undeviating result *my own experience* does not incline me to believe. Of all Hymenopterous insects in this country, there is perhaps no aculeate species more subject to the "skyeey influences" than the common wasp, and hence—without being exposed to a succession of cold or wet—a frosty night or two were quite sufficient to thin their numbers: and another and very important circumstance has not been noticed by Mr. Bree; I allude to impregnation. It is a well-known and established fact, that the large wasps, which first appear in spring, are females of a former season: these insects, on the approach of cold weather at the latter end of autumn, seek out some *nidus* in which to sleep during the winter: some pass the inclement season in the nest, and, if the situation is one which secures them from the effects of wet, I doubt not very securely. A fortnight ago a friend of mine dug out a nest, in the upper combs of which he found a number of females nestled together; others, leaving the nest, find safe retreats in holes in walls, trees, &c. The hornet burrows frequently into the decayed heart of trees, and there finds a suitable hybernaculum. Numbers of wasps and also hornets are found in turf-stacks, in Hampshire, where turf is piled up for winter fuel. Now, although large numbers pass the winter in such situations, is it not reasonably to be supposed that many of these may appear the following spring, and yet produce no brood, from want of impregnation? Such we know obtains to a great degree in Lepidoptera; such records have appeared in the pages of the 'Zoologist,' applying to the death's-head moth, &c. Now, should the autumn be cold and wet, with any considerable amount of frost, not only will large numbers perish (more particularly of the male sex), but *impregnation must be materially prevented*. Mr. Bree's record of an abundant flight of wasps, during the autumn of the present year, proves to my mind how greatly these insects are subject to the influences which I have pointed out. Last year wasps abounded in the neighbourhood of Hampstead, as they did also in the spring of that season; but this year, although I have visited the Heath once or twice every week,

from April to October, and have captured—with the exception of perhaps half-a-dozen—all the wasps I have observed, I have not in all met with two dozen, all sexes included: in the spring, a wasp of any species was a rarity; and in the bank of a field in the middle of Turner's Wood, Hampstead, where I have known three or four large colonies established some seasons, not one existed during the present season: on several occasions, on warm sunny days in September, when I might have expected swarms of wasps in these localities, I scarcely observed half-a-dozen individuals together. It will be recollected that in spring, about the 3rd or 4th of May, we had two or three nights of sharp frost, and in such exposed situations as Hampstead fruit trees suffered severely: how far this intense cold extended I am not aware, but the scarcity of fruit this year shows its range to have been considerable: to this I attribute in a great degree the scarcity of wasps in the locality I visited,—and such a cause may of course happen when the spring flights of wasps appear in numbers or otherwise,—but I am inclined to believe, from observation, that the abundance or otherwise of wasps in spring depends upon the state of the weather during the winter: should it prove excessively wet, and what we term a mild season, it proves destructive to insect life; the nights of the following spring, after such an excess of moisture, are usually cold, and the weather altogether unsuited to the insect tribe. The present year, if Mr. Bree's proposition were founded on fact (I mean as a consequent result), ought to have proved one of great abundance of wasps at Hampstead, but the reverse was the fact; and although the coincidences recorded by Mr. Bree, of 1833 and 1834, 1848 and 1849, appear to support his proposition, I can only regard them as results from the influence of causes above specified. The number of nests can by no means be taken as a sure index of the abundance of wasps to be expected in the autumn; that must, I believe, entirely be the result of weather suited to their development, dependant not only upon the state of the weather as adapted to their habits, but also as producing an abundance of food: strong and weak nests are schoolboy terms, each being the result—probably to a great extent—of weather and food, adapted to the peculiar causes of abundance or scarcity of wasps which I have endeavoured to account for.—*Frederick Smith; 11, Constitution Row, Gray's Inn Road, December, 1849.*

On the Economy of the Halicti.—Since the publication of my observations on a mixed colony of *Halictus abdominalis*, *Andrena* and *Sphecodes* (Zool. 2370), I have diligently followed up my investigations. In the beginning of April, of the present year, I began my observations on a colony of *Halictus morio* at Hampstead: these little bees were just beginning to make their appearance, and by the 29th were abundant; they continued to be so up to the end of June: all these individuals were females; not a single male had yet appeared, and I searched most diligently at all times of the day, once or more frequently twice a-week up to this period. Subsequently, until the beginning of August, their numbers were greatly reduced, single individuals being occasionally seen: they at no time altogether disappeared. About the second week in August the males began to appear, and by the end of that month they abounded, which they continued to do until October; and individuals of that sex might be found when all the opposite sex had disappeared. The result of my observations is in amount as follows:—The *Halicti* are a genus of bees differing in habit from every known section of the *Andrenidæ* (*Sphecodes* probably excepted) with which I am acquainted: contrary to all recorded observations on bees, the females appear first, and immediately set about the business of their economy, forming

their burrows, provisioning their nests, and thus fulfilling the duties assigned to them uncheered by the attentions of the opposite sex. My solution of this problem is, that the female *Halicti* which appear late in the autumn are impregnated at that time by the males, and hybernate during the winter, arousing, to fulfil these purposes of economy, with the first warm days of spring. This will probably appear at first sight a startling proposition; but my observations have led me to adopt this opinion, and such is I believe the true history of *Halictus*. On no occasion did I ever meet with male *Halicti* until the summer, whilst throughout the spring months the females have abounded; and every Hymenopterist must have observed the multitudes of male *Halicti* which are to be met with during the autumnal months. The same observations will probably apply to the genus *Sphecodes*, and I am inclined to believe that their history will prove to be identical with that of *Halictus*. Much has been written on the habits of the Hymenoptera, but I doubt if anything more remarkable than the history I have detailed has hitherto been discovered. That social Hymenoptera are impregnated in the autumn, and pass the winter in a torpid state, has long been known and proved, as in cases of the ant, the wasp, the humble bee, &c.; but I am not aware that any solitary wasp or bee has been observed to possess a similar economy. I readily admit that my observations may prove hereafter to be founded in error; but until direct evidence is produced to the contrary I shall hold to my opinion, it not being the result of a hasty conclusion, or any desire to court fame by promulgating a novelty, but the result of observations made during a series of years of ardent and constant attention to the subject; yet, notwithstanding all my care, all my application to the subject, since "Nature is only communicative at intervals," I may still have failed to meet with one of those intervals where the true history of the *Halicti* was to be discovered.—*Id.*

Increase and Decrease in the Weight of a Hive of Bees.—A hive (a last year's swarm), suspended from a Salter's circular balance, has given me an interesting chart, through the working months, of its increase and decrease, by means of self-acting mechanism. Below is a table of the weights through May, June and July: the decrease from that time to the present has been gradual. Two fine swarms having issued from this hive renders the table more interesting than it otherwise might have been.

Observations taken at 9 P. M.

Date.	lbs.	oz.	Weather.	Date.	lbs.	oz.	Weather.
May 5.....	16	9.....	Fair, warm.	May 19.....	18	8.....	Fair.
" 6.....	16	8.....	Fair.	" 20.....	18	12.....	Fair.
" 7.....	16	6.....	Rain.	" 21.....	19	2.....	Fair.
" 8.....	16	8.....	Fair.	" 22.....	19	7.....	Fair.
" 9.....	16	13.....	Fair.	" 23.....	19	3.....	Wet.
" 10.....	17	6.....	Fair.	" 24.....	19	8.....	Fair, warm.
" 11.....	18	0.....	Fair.	" 25.....	19	12.....	Fair, warm.
" 12.....	18	7.....	Fair.	" 26.....	20	6.....	Fair.
" 13.....	18	8.....	Showers.	" 27.....	21	12.....	Fair, overcast.
" 14.....	18	15.....	Fair.	" 28.....	22	14.....	Fair.
" 15.....	19	5.....	Fair.	" 29.....	24	10.....	Fair.
" 16.....	18	14.....	Wet.	" 30.....	24	8.....	Fair.
" 17.....	18	7.....	Wet.	" 31.....	25	10.....	Overcast.
" 18.....	18	6.....	Wet.	June 1.....	21	8.....	Fair (swarmed)

Date.	lbs.	oz.	Weather.	Date.	lbs.	oz.	Weather.
June 2.....	21	8.....	Fair.	June 25.....	21	2.....	Fair.
„ 3.....	21	10.....	Fair.	„ 26.....	21	10.....	Fair.
„ 4.....	22	10.....	Fair.	„ 27.....	21	8.....	Overcast.
„ 5.....	22	0.....	Rain.	„ 28.....	22	6.....	Fair.
„ 6.....	21	7.....	Rain.	„ 29.....	23	0.....	Fair.
„ 7.....	20	11.....	Rain.	„ 30.....	23	1.....	Overcast.
„ 8.....	20	9.....	Rain.	July 1.....	24	4.....	Fair.
„ 9.....	20	2.....	Overcast.	„ 2.....	24	12.....	Showers.
„ 10.....	20	8.....	Fair.	„ 3.....	24	9.....	Showers.
„ 11.....	19	0.....	Cloudy.	„ 4.....	24	6.....	Showers.
„ 12.....	16	6.....	Fair (swarmed)	„ 5.....	24	14.....	Fair.
„ 13.....	16	2.....	Fair.	„ 6.....	25	6.....	Fair.
„ 14.....	16	2.....	Fair.	„ 7.....	26	7.....	Fair.
„ 15.....	16	15.....	Wet.	„ 8.....	27	4.....	Fair.
„ 16.....	15	13.....	Fair.	„ 9.....	27	14.....	Fair.
„ 17.....	15	13.....	Fair.	„ 10.....	28	11.....	Fair.
„ 18.....	15	13.....	Fair.	„ 11.....	29	5.....	Fair.
„ 19.....	15	12.....	Showers.	„ 12.....	29	14.....	Fair.
„ 20.....	16	6.....	Fair.	„ 13.....	29	15.....	Fair.
„ 21.....	16	12.....	Fair.	„ 14.....	30	2.....	Overcast.
„ 22.....	17	8.....	Fair.	„ 15.....	30	5.....	Fair.
„ 23.....	18	12.....	Fair.	„ 16.....	31	2.....	Fair.
„ 24.....	19	14.....	Fair.	„ 17.....	30	12.....	Showers.

From July 17th to 28th the weight fluctuated between 30 and 31 lbs., and has decreased very gradually up to the present time (August 30th).—*George Fox; Duncombe Street, Kingbrook, 8th mo. 31, 1849.*

Humble Bees and their Parasites.—Since I named the fly bred from the nests of humble bees by Professor Henslow (Zool. 2584), Meigen's seventh volume has come into my hands, and he calls it *Tachina* (not *Exorista*) *devia*; and Macquart's genus *Pegomyia* has not been adopted by Meigen, who has maintained the integrity of his genus *Anthomyia*.—*John Curtis; 18, Belisha Villas, Barnsbury Park, December, 1849.*

Nomada armata.—It would be very acceptable if Mr. Smith would inform us where the male of this North-American species was taken, for I hear many of the unique Devonshire specimens in the British Museum must not be considered as natives.—*Id.*

On the Capture of Rare Coleoptera in Kent.—Upwards of three years have now elapsed since I obtruded myself on the pages of the 'Zoologist.' During that period, however, my love for Natural History has in no degree abated, but more important avocations have occupied my time; and the greater part of that period having been spent in a town, my opportunities for pursuing this delightful study have not been so great. The first of every month, however, brought me the 'Zoologist,' and I have been thus enabled to know how matters progressed in the different departments of Natural History of which it treats; and I have been most happy to observe a great increase in the number of your contributors, and I trust you will be able this year to record a large increase in the number of your subscribers. Although for the most part I have been otherwise engaged, yet I have not been entirely idle; indeed I have

become a convert to a branch of Entomology, which from my ignorance of it before I rather despised: I allude to the study of Coleoptera. During my residence in Northampton, I had the benefit of the advice and experience of my friend the Rev. Hamlet Clark, and of constant access to his beautifully arranged and most extensive collection of Coleoptera: his cabinet is indeed a library,—each drawer “contains a folio volume.” With my previous love for Natural History in general, and Entomology in particular, it was impossible that I could be long with so ardent and energetic a Coleopterist without being inspired by his example; and the result is, that I have become a studier and collector of Coleoptera, and I am fain to confess that I now think it a more interesting branch of Entomology than the study of Lepidoptera, although the latter are the most showy, and most admired by the ladies. The advantages which the study of Coleoptera has over Lepidoptera are not only derived from the much greater number of the insects themselves (and consequently an increased field for research), their peculiar habits, their various localities, their beautiful structure, but also from the simplicity of the modes of capturing them, and the more frequent opportunities of taking them,—for there is no month in the year when they may not be found in some situation or other. In the depth of winter, even a bag of moss from the woods, or of lichens scraped off oak and other trees, will oftentimes afford the collector many rare insects. Coleoptera have also this advantage, that they may be set out months after they have been taken, and will look as well as if just captured. I have, for instance, to-day set out some beetles—both small and large—which I took four months since in Kent, and they are in perfect preservation and colour, having been kept in a tightly-corked bottle half filled with well-bruised laurel leaves, which not only preserves them, but relaxes the joints of their legs in the most satisfactory way imaginable. But it is high time I proceed to the object I had in view in sending this communication, viz., to give an account of some of my captures in Kent in the past summer and autumn, during which seasons I was staying at my old abode, Kingston Rectory, which is situate between Canterbury and Dover, and is a most excellent locality for the entomologist. Around it are fine woods, filled with oak, ash, willow, hazel, &c. &c.; chalk-pits, chalky banks and numerous copses teeming with wild flowers, which so abound in Kent. The chief scene of my labours, as far as woods were concerned, was in one of 500 acres; and a charming wood it is; beautifully undulated, well timbered, and in places carpeted with flowers. I was more successful in this wood than in any other: here I took *Tillus elongatus*, *Rhagium Indagator*, *Cychrus rostratus*, *Leptura nigra*, *melanura*, *abdominalis* and *lævis*, *Pachyta livida*, *Cassida nobilis* and *sanguinolenta*, *Melasis buprestoides*, *Ptilinus pectinicornis*, *Nedus trimaculatus* and *horridus* (in some abundance on thistles), *Polydorus undatus* (abundant), *Alophus 3-guttatus*, *Attelabus curculionides*, *Apoderus avellanæ*, *Barynotus æscidii*, *Molytes Anglicanus* and *Germanus*, *Tanymecus palliatus*, *Balaninus nucum*, *Elephas*, *glandium* and *villosus*, *Cryptocephalus 6-punctatus* (one specimen), *C. Moræi* (common), *Chrysomela Hyperici* (abundant on the St. John's Wort), *pallida*, *10-punctata* and *rufipes*, *Campta lutea*, *Antherophagus pallens*, *Melandrya caraboides*, *Endomychus coccineus*, *Pyrochroa coccinea*, and *Melasoma Populi*. On a bank near this wood I took *Plinthus caliginosus* (which I also found under stones around the heights at Dover) and *Callistus lunatus*, and last year one specimen of *Tetratoma ancora*. On the *Cistus* plants, on the bank, I took *Mantura obtusata* in some numbers. All the above (with scores of commoner ones) were taken in and around this wood, which, if well worked, would, I have no doubt, be found to

produce many more good insects. In other localities in the neighbourhood I took *Carabus consitus*, *Leistus spinibarbis* and *fulvilabris*, *Licinus depressus* and *silphoides*, *Pœtilus dimidiatus*, *Echimuthus cyanocephalus*, *Sphodrus leucophthalmus*, *Trachys minuta*, *Polydrusus micans* and *undatus*, *Saperda cylindrica*, *Aphelocnemis nubila*, *Chrysomela hœmoptera*, *Graminis*, and one specimen of the beautiful *Gœttingensis*, and one of *Opilus mollis*. The ivy with which the church at Kingston is covered abounds with specimens of *Ochina ptinoides*. In June I took nearly 200 specimens of *Tanymecus palliatus*, in a field of clover, close to a wood: I found them first by sweeping, but they were so numerous that I was able to find them on the leaves of the plant,—but on the slightest alarm they fell to the ground, and it was with some difficulty I could distinguish them from the earth, on which they lay feigning death. On the 26th of May I spent a few hours at a village called Swale Cliff, between Herne Bay and Whitstable. There is nothing particularly attractive about the locality to the entomologist: the walk, however, from Herne Bay to Whitstable, would not be without its interest and its captures; but the spot most worthy of a visit, and most likely to repay the trouble, is above the shore, nearly opposite to the church at Swale Cliff, where the Swale itself (or some tributary stream) empties itself into the sea. The soft muddy banks abound with many members of the family of *Bembidiidæ*, among which I took specimens of *Notaphus Ehippium* and *Lopha Doris*. I have been thus particular in describing this spot, thinking that some of the readers of the '*Zoologist*' may perchance visit Herne Bay, and would be glad to know of the locality. During my sojourn in Kent, I paid several visits to the now celebrated sands near Deal (once or twice I had for my companion the Rev. J. Dawson, to whom the thanks of the entomological world are due for making known this interesting collecting-ground, and for his discoveries therein): here I had the pleasure of taking the beautiful *Lixus bicolor*, *Hypera fasciculata*, *Gronops lunatus*, *Acalles Roboris* and *echinatus*, *Sarrotrium muticum*, *Crypticus quisquilius*, *Limobius mixtus*, &c. &c. I also had the good fortune to take about a dozen specimens of *Apion Sedi*, and one or two of *Ceutorhynchus hirtulus* (both first discovered here last year by Mr. Dawson and Mr. Clark). A few years since, a specimen of *Melolontha Fullo* was found on these sands at Deal: it is now in the Canterbury Museum, where there is, I regret to say, but a poor and ill-arranged collection of British beetles. At Dover, too, they are no better off. Unfortunately in neither place is there now any practical working collector, which is the more to be regretted, as, from their situation, the neighbourhood of both towns presents a prolific field for Entomology generally, and Coleoptera particularly. The museum at Maidstone, however, established last year by Dr. Plomley,—in connexion with the Kent Natural History and Archæological Society,—I trust may be looked upon as eventually aiding the cause of Entomology: its objects are so excellent that I hope it will meet with the support and patronage it so well deserves, and that the entomological department will soon become as extensive as the ornithological at present is. I will only add, in conclusion, that I shall be happy to make exchanges with any of your correspondents who may have duplicate Coleoptera, especially in the more northern species.—*T. Pemberton Bartlett; Gorley Cross, Fordingbridge, Hants, December 4, 1849.*

Affinities of the Stylopites, an Essay. By EDWARD NEWMAN.

(Concluded from page 1804).

§ 3. *Anatomy of the Mouth of Stylops.*

STYLOPS is a small black insect, about a quarter of an inch in length: its head is transverse and its face prone: the width of the head is greatly increased by two large projecting eyes, a very marked character, and that from which its name is derived: these eyes are lateral, hemispherical, prominent, quasi-pedunculate, having the facets few in number and uniformly of large size: the antennæ are inserted in the epicranium, the base of each being equidistant from the eye and a mesial line; they are six-jointed; the basal joint is cyathiform; the second small, short, transverse; the third equally short as regards its shaft, but emitting anteriorly a large process or ramus, which extends parallel with the antenna to the apex of the fifth joint; the remaining joints are of nearly equal length, and each of them is about thrice the length of either the first, second or third; the fourth is oblong, slightly incrassated externally, and the longest of the six: the fifth and sixth are more slender and nearly equal in length.

Such is the general character of the head and its appendages: the face terminates in a distinct and obtusely trigonate clypeus; and beneath this clypeus, and having a direction towards the sternum, is the mouth: it consists of the following parts:—

1. *Mandibles* or *maxillæ*. These are very distant at the base; apparently seated on small protuberances, linear, slender, lancet-shaped, conniving and actually crossing at the tips: these organs are the only conspicuously apparent representatives of either mandibles or maxillæ.

2. *Maxipalpi*. Placed exterior to the preceding, and almost immediately adjoining the inferior margin of the eye, large, robust, two-jointed; the basal joint somewhat cyathiform; the apical joint attached somewhat obliquely, rather flattened, and having a slightly acuminate apex.

3. *Labium* or *mentum*. Small, triangular, immovable, anchylosed, having neither palpi, ligula, nor other appendages.

§ 4. *Comparative Anatomy of the Mouth of Stylops.*

It must, *in limine*, be admitted that the characters of so imperfect a mouth do not lead to any certain or inevitable conclusion; neither

shall I contend that we are warranted in any arbitrary nomenclature of its parts, much less in any conclusions deduced from such arbitrary nomenclature. Concerning the labrum, it seems to be pretty clearly ascertained that it is absent, or so anchylosed to and mixed up with the clypeus as to elude our search. I am not aware that this absence or concealment of a part can be availed of in the present inquiry. The lancet-shaped organs, therefore, claim our chief attention. Savigny, the *facile princeps* of gnathology, considers them to be mandibles, while he makes the basal joint of the palpus a maxilla and the apical joint a maxipalpus: it is impossible not to attach great importance and value to the opinion of so eminent a man. Mr. Curtis, to whom we are indebted for several admirable figures and dissections, and who has thrown great light on the structure of these highly interesting but obscure insects, unhesitatingly describes the lancets as maxillæ and the palpi as maxipalpi; and this view seems to be almost universally adopted: taken numerically, the suffrages of entomologists would be in favour of what may be called the maxillary theory; but I cannot deny that the authority of Savigny in favour of the mandibular theory is of more weight than that of all the rest, for it is to him we are indebted for all our knowledge of cibarian homologies. It is therefore with extreme reluctance, and after long and careful deliberation, that I am induced to express an opinion opposed to Savigny's, and to state my belief that the lancets are true maxillæ, or, speaking with greater precision, the lacinia of maxillæ; and I may perhaps be allowed to observe that Savigny's decision in this matter seems founded rather on an isolated consideration of a question hastily propounded to him, than on that comprehensive synthetical review which he had previously taken of insect gnathology.

I will now state my reason for supposing the lancets as well as the palpi to be maxillary organs: in the first place, they are united together like the maxillæ and appendages in ordinary Coleoptera or Orthoptera; there is a connexion and continuity between them which does not obtain between the mandibles and maxipalpi in any other insect, as far as my knowledge extends. In very many genera I find the maxillæ somewhat mixed up with, or by attachment identified as a part of, what might be termed the labial apparatus; but I know of no instance in which the mandibles are so mixed and identified. In the second place, the lancets are seated on something like a tubercle which seems analogous to the stipes of the maxilla, the lancet itself being the lacinia: as far as I am aware, this division into two parts, having a certain although slight quasi-articulation, has never been

observed in the mandible of any insect. No suggestion can be raised as to the character of the palpi, seeing they have no kind of connexion with the labium, which, as already described, exists in an evident although very diminutive state, and situate as distant as possible from the insertion of the palpi: they are therefore maxipalpi.

The form of maxilla which I have described as characterising *Stylops* is not of uncommon occurrence. In *Lepidoptera* it occurs frequently among the *Bombyces*: in *Diptera* we find it in the *Tabanites*: in *Hymenoptera* it exists in some of the bees; but in these three classes there is so great a development of the labial apparatus that the similarity is not carried out, ceasing with the organs in question: in *Orthoptera* and *Neuroptera* I recollect nothing analogous to the maxillæ of *Stylops*, while the *Hemiptera* have all the cibarian organs linear and setiform, fully and normally developed palpi—like those of *Stylops*—being invariably absent throughout the class: in *Coleoptera* such maxillæ are of very uncommon occurrence; still they are occasionally to be found, although, in every case which suggests itself for comparison, the *Coleopterous* insect seems not merely to imitate, but to caricature, the linear, lancet-like maxillæ of *Stylops*. The first insects I shall cite are two North-American *Telephorites*, described by Hentz under the names of *Chauliognathus marginatus* and *C. bimaculatus*, in which the maxilla and maxipalpus are constructed precisely on the same plan as in *Stylops*, the only notable differences being that the *Chauliognathi* have a greater length of lacinia and a greater number of joints to the maxipalpus; but evident as is the similarity between the maxillæ of *Chauliognathus* and *Stylops*, it is still more striking between the latter insect and three species of parasitic *Hormocera*, the very group with which I have shown that the economy of *Stylops* presented so exact an analogy: these insects are *Macrosiagona dimidiata* (one of the *Mordellites*), and *Nemognatha* and *Gnathium* (two genera allied to *Cantharis*); and it is worthy of remark, as affording some colour to this view of the case, that in all these genera the peculiarity is said to be confined to male insects. After a perusal of these observations my readers will, I think, be willing to admit that however slight the tendency of this imperfect mouth towards a *Coleopterous* type, it certainly has less tendency towards any other class. The other parts of the head require a few words.

The eyes of *Stylops* are remarkable. Those who have studied the eyes of insects with a view of generalizing phenomena must have observed that these organs are very largely developed throughout the *Diptera*; the head has become almost all eye: the accurate observer

will scarcely fail to remark, in addition, that the greater development in the eye is in the male sex : again, it is a veritable fact that in those Coleoptera which assume a Dipterous character, through the diminution of their fore and the enlargement of their hind wings, the eyes, especially of the male, also assume the Dipterous character of great development: this is the case in *Atractocerus*, *Myodites*, *Symbius*, and many other genera: in these the eyes occupy almost the entire head, being separated by a narrow linear epicranium, scarcely differing from the same part in the common house-fly. Seeing, then, that in *Stylops* the Dipterous character is exhibited in excess, its large and projecting eyes are in perfect accordance with this notable law of nature, and exactly harmonise with those of certain small groups of Coleoptera, distinguished by that disparity of wing which is so excessive in *Stylops* as to be the stumbling-block of all systematists when seeking its affinities.

The clypeus, or rather that part to which I have assigned the name, has no character, either of figure or magnitude, in any respect anomalous,—indeed it can hardly be called abnormal: this part may or may not be composed of the anchylosed clypeus and labrum: the presence or absence of such anchylosis would not be extraordinary; the trigonate form of clypeus is not uncommon in Coleoptera, and I can find nothing in this part of the head, viewed in any light or subjected to any rule of nomenclature, that at all militates against my theory.

Last, and of least importance, are the antennæ: those of *Stylops*, *Xenos* and *Elenchus* are of unusual structure for either class; but the fortunate discovery of *Halictophagus*—so evidently allied to the other three, yet so simple and even commonplace in the character of its antennæ—shows that these organs, however they may vary in structure, afford no character of higher value than for distinguishing those infinitesimally small and purely artificial groups now known under the name of genera, but which differ, *toto cælo*, from the groups thus originally denominated by Linneus and Fabricius. I might cite abundant instances of antennæ quite as abnormal as those of *Stylops*, and I might show that the abnormality is of a like kind, the inflation or elongation or branching of a certain joint, and this numerically the same, in the male insect; but it would be an unprofitable labour, seeing that the fact must be universally admitted.

§ 5. *Anatomy of the Pro-, Meso- and Metathorax of Stylops.*

The prothorax is a short transverse ring, about half the width of the head, increased, as I have described it, by the projecting eyes; and as the mesothorax is of nearly similar proportions, the insect thus acquires a somewhat hammer-headed figure: the prothorax has on each side a longitudinal sinus or depression, which separates the dorsal from the sternal surface; at this sinus the dorsal surface slightly projects, somewhat overhanging the sternal: the propodes are distant at the base, simple, having the coxæ longer than the femora, and both these joints slightly incrassated: the tibiæ are rather longer than either of the preceding joints, are slightly thickened exteriorly, and are perfectly simple and unarmed, having no spines or other appendages: tarsi four-jointed, the joints deeply notched and cushioned beneath; claws none.*

The mesothorax is also a short transverse ring, rather wider than the prothorax: it is divided dorsally, by two slight furrows, into three sections: the dorsal surface is flat centrally, but slopes off on each side, and overhangs the lateral surface like the roof of a house: attached to this segment, near its anterior margin and on its sloping or deflected sides, are two opaque, leathery, narrow, diminutive, slightly curved, rudimentary wings:† these organs, like the elytra of Coleoptera generally, and the halteres of Diptera, are without the characteristics of normal wings, but, as in both these instances, their attachment to a certain segment removes all doubt as to their true nature. This segment also bears the mesopodes, which differ from the propodes only in their shorter coxæ.

The metathorax is enormously developed, and comprises nearly two-thirds of the entire insect: its surface exhibits numerous well-marked divisions, but it is to be regretted that existing figures and

* This description of the tarsi is perhaps conventional rather than absolute: it has been said that a fifth joint had been observed on the pro- and mesotarsi, but that these—being very slender and fragile—have been detached through entanglement in the fabric of the material employed for making the net, whenever the insect may have been taken.

† The term *twisted*, as applied to these organs, although not positively erroneous (since they are not perfectly straight), still conveys an erroneous idea,—since that word, as used in several generic names, implies a complete and somewhat corkscrew-like twisting, and not the deviation from a direct line observable in the fore wings of *Stylops*.

descriptions assist us but little in determining their homology.* The dorsal surface consists of eight pieces: drawing a mesial longitudinal line throughout its extent, it will intersect four sections, all of them distinctly marked and conspicuous. In such a case there seems little choice as to nomenclature: we are almost reduced to the necessity of calling them præscutum, scutum, scutellum and postscutellum; † still I must here observe that I adopt these terms as a matter of course, and not as the result of analytical investigation. The præscutum, scutum and scutellum are of nearly equal size, and all of them approach a triangular form, but the position of the triangle differs: in the præscutum the base of the triangle is towards the head of the insect, the apex pointing backwards: in the scutum this position is reversed, the apex pointing towards the insect's head and meeting the apex of the præscutal triangle; the base is posterior and meets the base of the scutellum, the apex of which consequently points backwards: the postscutellum is the largest of the four sections; anteriorly it emits two processes or limbs, which embrace the scutellum; posteriorly it is prolonged over the abdominal segments, and terminates in an obtuse apex. The remaining pieces, exhibited dorsally, are four or two pairs: the anterior pair are large and lozenge-shaped; they occupy the upper pleuro-dorsal area, and nearly meet at the same point as the apices of the præscutal and scutal triangles: the posterior pair are still larger, of irregular figure, and occupy the hinder pleuro-dorsal area of the segment; they extend laterally as well as dorsally, giving the body a somewhat inflated appearance: it will scarcely be advisable to assign names to these pieces, because the different versions entomologists might assign to such would perhaps rather tend to confuse than elucidate the subject. Immediately below each of the anterior side-pieces is attached a large, membranous, delicate, opaque wing: when the insect is not flying these wings are loosely folded in a longitudinal direction, reposing on each side of the body; in this folding there is nothing fan-like, a term constantly but erroneously used in describing them, and one which would be strictly applicable to the wings of such Orthopterous insects as *Rhipipteryx*,

* I may also here remark that the homology of the skeletons of insects is not yet sufficiently worked out to be employed unerringly in the present inquiry.

† It should be borne in mind, that when *Stylops* was first described the nomenclature of these parts was much more arbitrary and optional than at present: any discrepancy, therefore, between the names originally used in describing *Stylops* and those I have now for the first time applied does not indicate any difference of opinion.

Tridactylus and *Acridium*. The wings of *Stylops* fold more like drapery when suspended: they have a strong costal nervure, and a few very delicate and obscure discoidal nervures, but are quite without regular radiating nervures, which characterise the fan-like wings of Orthoptera. The metapodes are simple, situate near the posterior margin of the metasternum, and differ chiefly from the pro- and mesopodes in their shorter tibiæ and in their closely approximate insertion.

The remaining segments of the insect are eight in number, and differ from those described in being soft and flexible, and capable of being twisted about in all directions, turning over the back with ease and agility: each of these segments—except the last, which appears to be the male organ of generation—is most distinctly divided longitudinally into four surfaces,—a dorsal, a sternal and two pleural.

§ 6. *Comparative Anatomy of the Pro-, Meso- and Metathorax of Stylops.*

Many years ago I invited the attention of entomologists to a theory regarding the correspondence in development between the wings and winged segments in insects. I attempted to show that certain conditions of the winged segments predicate analogous conditions of the wings. Thus, when the fore wings constitute the real organs of flight, the mesothorax must be capable of imparting their power to these wings, and this power we invariably find to be co-existent with increased bulk, so that the mesothorax is largely developed at the expense of the metathorax. On the contrary, when the hind wings constitute the sole organs of flight, the reverse takes place; the metathorax is then largely developed at the expense of the mesothorax. I hope to be pardoned for the egotism exhibited in a reference to what I have previously done; but the revival of a theory which, if noticed at the time, was never accepted, and has probably been entirely forgotten, seems essential to the proper understanding of the very interesting structure of the wing-bearing segments of *Stylops*. Although an unfortunate error crept into the first scientific description of *Stylops*, all entomologists are, I believe, now agreed on the nomenclature of the winged segments,—the fore wings being attached as always to the mesothorax, the hind wings to the metathorax. The supposition that any connexion existed between the fore wings and fore legs of course implied that both these were prothoracic appendages, and consequently that the entire arrangement of these parts

was anomalous.* Now it will be at once obvious to entomologists, that, in the relative development of wings and wing-bearing segments, Stylops offers a peculiarly apt illustration of the theory to which I have alluded: it exhibits the most beautiful and perfect harmony in the relative development of these parts; and this harmony is not confined to a comparison of these parts in Stylops *inter se*, but extends to a comparison of such parts in Stylops with corresponding parts in other insects. In Stylops there is nothing anomalous either in the proportion or disposition of these parts,—at least nothing more than an unimportant discrepancy in degree: perhaps no other insect has fore wings quite so disproportionately small, or a metathorax quite so disproportionately large; but beyond the excess of a character we have no discrepancy worthy of comment.

We have, then, to inquire in which of the established classes do we find the comparative proportions which are excessive in Stylops. In all the Coleoptera and a considerable portion of the Orthoptera—such, for instance, as *Phasma* and *Forficula*—the fore wings are totally powerless as organs of flight. In the normal groups of these two classes—such, for instance, as *Scarabæus* and *Gryllus*—they are large and conspicuous appendages, apparently designed to cover the hind wings, while in *Atractocerus* and *Phasma* they merely exist in a rudimentary form, in a state of uselessness and inactivity: now it is precisely this state of uselessness and inactivity, carried—to use a somewhat paradoxical expression—to its maximum, that we find so apparent in Stylops. And here it may be adduced,—as an argument in reconciling the proposed association of Stylops with such genera as *Rhipiphorus*, *Sitaris* and *Apalus*, which have much larger and almost

* The patriarch of British Entomology was led to this conclusion by the general accuracy of his draughtsman, from whose figure it appears that the appendages which in this essay are called fore wings are really attached to the fore legs, and *on this character the order* (a primary division of insects) *was actually founded*. Surely such a conclusion may fairly call forth the following queries:—*first*, if the fore legs of any insect be furnished with such appendages, *can these by any possibility be wings at all?* Suppose a Dipterous insect—a *Tabanus* for instance—to be discovered having appendages exactly identical with the fore wings of Stylops, but positively and obviously attached to the fore legs; such a structure would perhaps justify the characterizing of a new species,—a *Tabanus pennipes* or *Tabanus lobipes*,—but nothing more. But, *secondly*, suppose the juxtaposition of the parts in question was accidental only, the idea that they were attached traceable to a mere error of the pencil, *then does not the division* (whether class, order, genus or species) *founded on such error fall to the ground?*

normal fore wings,—that the Coleopterous genus *Atractocerus* has the fore wings nearly as small as those of *Stylops*, and, as in that insect, situated at the extreme anterior margin of the mesothorax; while in the genera *Cupes*, *Lymexylon* and *Hylecetus*, always united in a family group with *Atractocerus*, the fore wings have a normal size, figure and situation. Reviewing the other classes, we find that in *Diptera* the fore wings are the sole organs of flight; in *Lepidoptera* and *Hymenoptera* they bear a chief part in the function of flight; in the typical *Neuroptera* they share it equally with the hind wings; in *Hemiptera* they subserve the same purpose, although their structure—especially in the *Cimicites*—partakes rather of the protecting character so marked in *Coleoptera*. Hence in this respect *Stylops* has no affinity with any classes except *Coleoptera* and *Orthoptera*. The mesothorax, as well as the fore wings, recedes to its minimum of development in *Orthoptera*, *Coleoptera* and *Stylops*. The hind wings and metathorax, on the contrary, have acquired an exclusiveness of function and a maximum of development in *Coleoptera* and *Orthoptera*; and for these characters *Stylops* is still more remarkable, exceeding any insect or group of insects previously known in the enormous development of its metathorax. A careful comparison of this segment in *Coleoptera*, *Orthoptera* and *Stylops*, will disclose many points of similarity, more especially as regards *Coleoptera* and *Stylops*,—a point which I would willingly discuss at greater length, were it not that the hind wings furnish still more conclusive evidence. To these organs I would invite particular attention: their irregular mode of folding and the paucity of their nervures, together with the entire absence of transverse or reticulating nervures, show that there is no affinity between the hind wings of *Stylops* and those of the *Orthopterous* locusts, with which the enlarged metathorax had induced us to compare them. But precisely as the hind wings of *Stylops* recede from the numerously veined and fan-like organs which are so conspicuous and ornamental in *Orthoptera*, so do they approach the sparingly veined, amorously folded, inconspicuous hind wings of *Coleoptera*, so that at this point the line of affinity—previously running parallel between the two great classes—decidedly leaves the *Orthoptera* and approaches the *Coleoptera*. This is still more strikingly the case in *Halictophagus*, which, in place of the weak and scarcely discernible nervures of *Stylops*, has them strong and well marked: one of these, running parallel to the costa and situate immediately below it, is interrupted at three-fourths of its length, thus enabling the wing to fold transversely

at this point:* below the subcostal nervure is a third, interrupted and forked at a little more than half its length, both branches reaching the outer margin of the wing: besides these there are three other nervures, and all the six, when the wing is extended, radiate from the base to the exterior margin of the wing. This character of hind wing is normally and solely Coleopterous; in fact so precisely is the hind wing constructed after the Coleopterous type,—indeed so nearly does it resemble in miniature the hind wing of a *Ripiphorus*, a *Mordella* or a *Cantharis*,—that no entomologist would think any slight discrepancy he might observe sufficient to warrant its separation from either of those genera. And here I cannot but regret the absolute ignorance which prevails respecting the neururation of the hind wings of Coleoptera: we have really *no* knowledge of the important characters which these veins possess; we have *no* nomenclature of these veins: and I am unable to do more than beg my readers to institute a comparison, and it cannot be too rigorously exact, between the wings of *Halictophagus*, as portrayed in Mr. Curtis's beautiful figure, and those of actual specimens of the Coleopterous genera I have mentioned. I am convinced the candid inquirer, after such a comparison, will arrive at the same conclusion as myself.

It therefore results, from a comparison of the wings and wing-bearing segments of Stylops with those of insects belonging to the seven received classes, that the structure of this curious insect approaches the ordinary structure of Coleoptera, and recedes from the ordinary structure of the rest,—Orthoptera alone offering any points of similarity, and these points of similarity being few and isolated. In fine, it may be stated that the discrepancies between the wings and wing-bearing segments of Stylops and those of Coleoptera are differences in degree, whereas compared with others of the other classes they are differences of kind. Stylops cannot be associated in an alary system with Lepidoptera, Diptera, Hymenoptera, Orthoptera, Hemiptera or Neuroptera: to me it appears absolutely necessary that they should associate with the Coleoptera; the evidence of design in system requires their association with one of the classes, and

* I would here call the attention of entomologists to the interesting fact that this capability of transverse folding is not availed of in several Coleopterous genera, the wings being folded loosely and longitudinally on the abdomen. I have observed this to be the case in *Necydalis*, *Hesthesis*, *Heliomanes*, *Rhipidius*, *Myodites*, and many others; but, as in *Halictophagus* above described, the interruption of the main alary nervures indicates a structural affinity to that great class in which the transverse folding of the hind wings is a prominent although rarely noticed character.

the structure of the alary segments points to Coleoptera. Still an alternative remains, and that alternative all our entomologists have adopted,—the creation of a new primary division purposely for the reception of this insect. This is an easy but illogical proceeding: it relieves the mind from the labour of thinking, but loads the system with an unnecessary name: it cuts the knot, does not untie it, and, like Alexander's celebrated act, it saves a world of trouble. This disposition to create primary divisions results from a confused idea of their object in the first instance, and a deficient power of synthetic association in the second. Minds like Cuvier's or Humboldt's make no such divisions: it is not only certain that they have not done so, but it is equally certain that all their writings have an opposite tendency: like our own Newton, they combine facts and seek cumulative evidence of their conclusions: such minds would not isolate *Aphis*, *Forficula*, *Phryganea*, *Ephemera*, *Sialis* or *Stylops*, all of which, and several other rather abnormal genera, have for a time taken rank as primary divisions of articulate animals, because it has been found difficult or troublesome to master the homologies of their structure.

SUMMARY.

§§ 1, 2. *Metamorphotic System.*

The character of the pupa is found to be necromorphous, and thus the inquiry is at once restricted to the two classes Hymenoptera and Coleoptera: this limitation, however, is not availed of.

The character of the larva is Coleopterous, and precisely identical with that of several parasitic hornocerous Coleoptera.

§§ 3, 4. *Maxillary System.*

The mouth is so imperfect that it is difficult to deduce absolute conclusions from the parts yet ascertained, but such ascertained parts throw no difficulty in the way of considering *Stylops* Coleopterous, while they positively preclude its association with either Lepidoptera, Hemiptera or Diptera.

§§ 5, 6. *Alary System.*

The wings of *Stylops* are purely Coleopterous: they are not in the least anomalous, and are only abnormal in size, the fore wings being

relatively smaller, the hind wings relatively larger than in ordinary Coleoptera. The same remarks are applicable to the segments bearing the wings.

EDWARD NEWMAN.

Devonshire Street, Bishopsgate,
May, 1847.

Curious Act in the Lesser Earwig (Labia minor).—One fine evening in the latter end of July, some years ago, I was sitting near a window, reading, when my attention was attracted to an insect resembling a small earwig (*Labia minor*), which, alighting on my book and running very nimbly to the top, spread its wings and flew away to the window. Although I was aware that earwigs were winged insects, I had never seen one fly before, and was therefore desirous of observing how it was managed: I consequently secured the insect, and induced it to run up to the top of the book as before, where it again took flight. This I caused it to repeat a number of times, and was much gratified in observing the manner in which this creature prepared its wings for flight. Upon arriving at the highest point it could attain, the insect stood quite still, and raised the elytra; it then, with a very quick motion, thrust the point of one of the caudal appendages, close to the body, under the wing, which was unfolded by its agency: this being repeated on the other side, both wings were fully expanded, and the insect briskly flew away. Thus, then, we see that those appendages which give this insect so formidable an appearance to the uninstructed, and whose office is by no means apparent at first sight, are intended to expand the curiously folded and closely packed wings, which have long been subjects of admiration to those interested in Natural History.—*John Williams; Royal Astronomical Society, Somerset House, December 6, 1849.*

[This is a most interesting fact; but it is remarkable that the common earwig (*Forficula auricularia*) has the same appendages largely developed, and yet is not known to use its wings.—*Edward Newman.*]

Occurrence of a Foreign Bat in Orkney.—Mr. Newman, in the preface to the volume of the 'Zoologist' for 1849, refers to my paper with the above heading (Zool. 2343). He seems to infer that it was rather "slow" of me not to seize so plausible a pretext for adding a new bat to the British list. Mr. —, Mr. — and Mr. — are men of far better spirit; they have shown some most exotic-looking birds to be truly British. But as Mr. Newman says that I "do not attempt to account for its presence in the Orkneys, and that the subject requires more minute investigation," I will now endeavour to say a little more about it than I did in my first communication. I grant that the subject requires further investigation, and such I intended to have given it during a second visit this summer, by ascertaining positively whether any bats are constant inhabitants of the Orkneys, and if so, of what species; but I was unfortunately only there a few days, and in such weather as no

bats could be expected to withstand. If I did not attempt to account for the presence of this bat, I certainly hinted at my views on the matter, by saying that a bat is a very likely animal to be brought in a ship, and by observing that this specimen was looked upon as a very great curiosity, as any bat would have been. Of the circumstances of its discovery I had undoubted evidence. The people who found it were as much astonished and frightened at it as Mr. Gerard was surprised to see it; and this gentleman preserved it with great care, as a thing of most unusual occurrence, though he did not know it was otherwise than a common bat. I may add that he is now some years past eighty, and has all his life been an observer of Nature, as exhibited in the Orkney Islands, and especially in South Ronaldshay. This country, entirely destitute of trees, and so exposed to every wind, seems very ill adapted for the constant residence of any species of bat; and therefore these considerations, with the evidence of the people, at once inclined me to believe it was an accidental visitant. I was told at the British Museum that the characters I had observed—the hairiness of the upper side of the interfemoral membrane, and the yellowish band of hair on the wing underneath the principal bones—were peculiar to a family of American bats, called, from the first circumstance, *Dasyurus* or *Lasiurus*; and on my bat (for it has since been very kindly presented to me by Mr. Gerard) being compared with those in the Museum, it was attributed to the species called *pruinus*, although considerably larger than the specimens in the collection, and it may perhaps be a nearly allied species. Had any species of the group been known to inhabit Europe, I should have had better hopes of finding that this bat was really indigenous to the north of Britain. All things considered, I have little doubt it was brought by one of the very numerous vessels which pass between South Ronaldshay and John o' Groats, from various parts of the world, or which lie up in the far-famed roadstead, the Long Reach, of which South Ronaldshay forms the eastern breakwater. Very many exotic insects are introduced by vessels at Liverpool and other sea-ports; and bats can hide in a corner, and do without food in cold weather, almost as well as an insect. I hope the reasons I have now stated will serve to explain my contentment in looking upon this bat as an intruder.—*John Wolley; Edinburgh, December 15, 1849.*

The supposed New British Mammal (Zool. 2676).—The probabilities in favour of the supposition that the animal is a very young individual of *Lutra vulgaris* seem to have the predominance. In January, 1845, two of these animals were caught in a trap in the Avon, both of which I examined, and the female, weighing 14 lbs., is now preserved in my collection. On referring to it, I find that the legs are well clothed with thick full fur, but the toes and connecting membranes are covered with very short appressed hair, the division of the two sorts being very *abrupt*. Is it not possible that the feet may remain free from hair after the body and legs have become well furred? The tail, too, has the fur at and near the base fully twice as long as it is near the extremity, which the same supposition will perhaps account for. Its shape is like that of the supposed new animal, being distinctly "rather flattened, and tapering to a fine point." The feet being "rather long" may probably be accounted for by the age, as all young Mammalia have the extremities large in proportion to the size of the body: among the *Mustelidæ*, the common ferret is a fair illustration of this. The claws are those of the otter, being "sharp, but rather short," and the webs occupying the whole length of the toes clearly indicate aquatic habits. The value of colour in many Mammalia is but trifling, unless a considerable number of specimens can be obtained, and thus all the variations well ascertained. But the

most singular part of this description, and where it entirely differs from that of the otter, is the shape of the ears, which are stated to be "large and spreading." Now the ears of the otter are neither the one nor the other: in my specimen—which measured, when in a fresh state, 28 inches 9 lines from the snout to the base of the tail—they were only 6 lines long, and appear now in the dried specimen to be not more than two-thirds of this in width. If it is not a young otter, to no other of our *Mustelidæ* can it possibly be referred; and the supposition that it is a hybrid between the otter and founart appears to me quite improbable, if not impossible: the difference in size of the two animals seems to preclude all chance of this. I subjoin measurements of such of our *Mustelidæ* as occur here (with the exception of the marten, which is very rare), taken from animals when freshly killed. They were taken in the winter of 1846-7, and I have selected such as appeared to be nearest the middle or average size.

Polecat (a full-sized male; a female would be less).

	in. lines.
Head and body	17 0
Head	3 4
Ears	" 4
Tail	6 0

Stoat.

	Male.	Female.
	in. lines.	in. lines.
Head and body	10 9	9 0
Head.....	2 3	2 0
Ears	" 5	" 4½
Tail	6 5	4 7½

Weasel (male).

	in. lines.
Head and body	8 0
Head	1 9
Ears	" 3
Tail	2 7½

Otter (female).

	in. lines.
Head and body	28 9
Head.....	5 6
Ears	" 6
Tail	15 0

Weight 14 lbs.; a male taken at the same time weighed 18 lbs.

From this it may seem that the otter and polecat do not differ much in size, but in actual bulk there is a vast difference, as the weight of the otter will sufficiently testify.—*Robert F. Tones; Welford, Stratford-on-Avon, January, 1850.*

Occurrence of the Water Shrew (Sorex fodiens) in Staffordshire.—On the 7th of last month, about noon, as I was passing in a pony-carriage along the highway near the corn-mill at Tutbury, in the county of Stafford, I observed a small black-looking animal in the road before me. It was so busily engaged in searching among some

horse-dung (for insects, I presume), that it did not perceive our approach, and my servant caught it in his hand without any attempt on its part to escape. It proved to be a water shrew (*Sorex fodiens*), and is the first specimen I have captured in this neighbourhood, although similar ones have occasionally been seen disporting among the broad leaves of *Nymphaea alba* and *Nuphar luteus*, with which our waters abound. I suspect that this little animal is not so rare as it is generally imagined to be; and for the guidance of others, who *might* otherwise perhaps overlook it, I would add the following particulars respecting it. The fur upon the upper parts of the body is of a rich, velvety, brownish black colour, somewhat resembling that of a mole; the breast and fore parts of the belly of a dirty white, with a darker oval spot beneath the throat; the snout is considerably shorter and less pointed than that of the common shrew; the ears are so short that they would scarcely be perceived were it not for a fringe of white hairs which indicate their situation; the tail somewhat quadrangular, ending in a point, of a similar colour to the back, but interspersed with a greater quantity of minute whitish hairs; feet, particularly the hinder ones, broader than in the common shrew, and the toes rather densely covered with long white hairs; claws long and very sharp-pointed; the length of the head and body 3 inches 3 lines, and that of the tail 2 inches.—*Oswald Mosley; Rolleston Hall, January 10, 1850.*

Occurrence of the Peregrine Falcon (*Falco peregrinus*) *near Worcester*.—A beautiful male specimen of the peregrine falcon was shot near Worcester on the 22nd of November.—*Martin Curlier; Bevere House, Worcester, December 12, 1849.*

Occurrence of the Merlin (*Falco Esalon*) *at Lewes*.—Early in October the merlin made its appearance in this neighbourhood in rather considerable numbers. Five specimens fell into the hands of one person in a very few days.—*J. B. Ellman; Lewes, December 10, 1849.*

Note on the Long and Short-eared Owls (*Strix otus* and *brachyotos*).—A very fine specimen of the long-eared owl occurred near the town a few days since, and is now in my possession. The short-eared owl was also taken at the same time, near the same place. Both these species are now getting so very scarce with us that I think their occurrence worth recording.—*Id.*

Occurrence of the Great Gray Shrike (*Lanius Excubitor*) *near London*.—A specimen of the great gray shrike was picked up at Kentish Town, and another at Kilburn, early in November last.—*Frederick Bond; Kingsbury, Middlesex, January 7, 1850.*

Singular Variety of the Red-backed Shrike (*Lanius collurio*).—A specimen of this bird, of a uniform pale fawn colour, occurred here last August.—*J. B. Ellman; Lewes, December 10, 1849.*

Migration of the Ring Ouzel (*Cinclus aquaticus*).—The number of ring ouzels passing southward this autumn has been astonishing. Large flocks were seen continually on the downs from September to nearly the end of October. No one can ever recollect their being so plentiful before.—*Id.*

Singular Variety of the Hedgesparrow (*Sylvia modularis*).—A white specimen of the hedgesparrow occurred in the neighbourhood a short time since. With the exception of a red patch or two on one wing, it is entirely white.—*Id.*

Change of Plumage in the Robin (*Sylvia rubecula*).—On the 3rd of this month I met with what may be called a rarity among the feathered tribe of this country. The bird was a robin, of a kind of pinky white colour. I met with him on the road side while riding, and pulled up to look at him: it was a very cold day, with snow on the ground, and he was very tame, allowing me to come close to him: with a pistol I could easily have shot him. I believe ornithologists cannot as yet fully account for this singular change in the plumage of a bird on the approach of winter: for why should a single bird, usually of a dark brown plumage, change that colour and become nearly white, while at the same time, and in the same field he always frequents, perhaps a dozen of his congeners retain their accustomed colour? I have in my collection a blackbird of a pure cream colour, shot among the hills near this place, one hard winter, some thirteen or fourteen years ago; and another specimen of the same bird, shot in Derbyshire, of a beautifully mottled plumage, black and white. Now the robin before mentioned could scarcely, one would think, have had his white coat on in September last, nor if he lives do I think he will be the same colour in May next: will he in this case moult, or merely change the colour of his feathers?—*J. M. Jones; Montgomery, January, 1850.*

Perfectly White Specimen of the Redstart (*Sylvia phœnicurus*).—I have in my possession a milk-white variety of the redstart, killed by myself last June.—*Martin Curtler; Bevers House, Worcester, December 12, 1849.*

Occurrence of Three Specimens of the Black Redstart (*Sylvia Tithys*) *in Sussex*.—A specimen of this scarce bird was procured at Worthing not long since: this is a rather early appearance in this district. A pair were also procured at Hollington not long since.—*J. B. Ellman; Lewes, December 10, 1849.*

Occurrence of the Black Redstart at Falmouth.—Mr. Gardener, of Oxford Street, has just shown me a female specimen of the black redstart in the flesh: he received it for preservation from Falmouth, where it had lately been killed. Mr. Gardener thinks the occurrence of this species in the winter a deviation from its usual habits; but my experience rather tends to prove this bird a winter straggler on our southern coasts.—*Edward Newman; January 8, 1850.*

Occurrence of the Fire-crested Regulus (*Regulus ignicapillus*) *near Knaresborough*.—I have much pleasure in being able to record the capture of a fire-crested Regulus. On the 3rd instant a specimen of this bird was caught by some boys in a lane near Whixley. When first seen it was in company with some titmice. It was sent to me the same day by my father-in-law, who had purchased it, supposing it a very fine specimen of the common species; but the markings at the side of the head, as well as the feathers forming the crest (which in the present example are of an intense flame colour), sufficiently distinguish the species.—*James C. Garth; Knaresborough, December 20, 1849.*

Occurrence of an Exotic Grosbeak at Ilford, near Lewes.—A specimen of a species of grosbeak was shot at the above place, about six weeks ago. It was in beautiful plumage, and did not exhibit any marks of confinement. Mr. Yarrell, to whom I wrote on the subject, pronounced it to be the Malacca grosbeak; but, as my description was very imperfect, this name must not be relied on. It is a very small bird, not exceeding 4 inches in length: head and neck black; back, wings and tail red-brown; belly white; legs black; bill horn-colour; black feathers under the vent.—*J. B. Ellman; Lewes, December 11, 1849.*

Occurrence of the Hoopoe (Upupa Epops) at Lewes.—A specimen of the hoopoe was shot in this town about two months since.—*Id.*

Variety of the Swallow (Hirundo rustica).—I have in my collection a dusky white variety of the common chimney swallow, a young bird, shot here last August.—*Martin Curtler; Bevere House, Worcester, December 12, 1849.*

Occurrence of the Virginian Colin (Coturnix Marylandica) near Tunbridge Wells.—A beautiful specimen of the Virginian colin was shot at Rotherfield, near this place, a few days ago: it is a female. It rose with some partridges, with which it had been feeding. I have made inquiries, but cannot find that any of these birds have ever been turned out in this neighbourhood.—*Walter W. Reeves; Parade, Tunbridge Wells, January 4, 1850.*

Occurrence of the Great Bustard (Otis tarda) in Romney Marsh.—I have been fortunate enough to obtain that almost extinct bird in England, the great bustard, which was shot at Lydd, in Romney Marsh, on January 4th. The man who shot it informs me that he had in his garden a wounded wild goose, and that the bustard (which he supposed to be a goose also) had been seen several times, by himself and others, steadily flying over his garden, and that on the morning of January 4th, as he was standing at his back door, he saw the bird at a distance flying direct to him: he immediately stepped into his house, got his gun, and killed the bird as it was passing over his wounded goose. I believe this to be the only instance of its being killed in Kent; but from the information I obtained during the many years of my residence in Romney Marsh, I think the great bustard was not uncommon formerly in that locality. My specimen is a female, and in beautiful plumage. It measures, from the crown of the head to the tip of the tail, 2 feet 8½ inches; across the breast, with the wings closed, 10½ inches; from the extremity of one wing to the other, when expanded, 5½ feet. The crop contained a quantity of vegetable matter, principally sea-kale.—*F. Plomley, M.D.; Maidstone, Kent, January 16, 1850.*

On the Capture, Habits and Change of Plumage in the Black Stork (Ciconia nigra).—I beg to hand copies of correspondence between the late Robert Anstice, Esq., of Bridgwater, and the late Col. Montagu, on the capture, habits and changes of plumage of the black stork, which is now in the British Museum, and is the first specimen of this interesting bird recorded as a visitor to Britain. Mr. Anstice was better known as an amiable and excellent man, by his intercourse and correspondence with the distinguished men of science and eminent naturalists of his day, than by his published works. Col. Montagu is too well known as an author on various branches of Natural History to require any remark. The *Leptocephalus* mentioned by Mr. Anstice, in his letter of December 6, 1814, was taken in Bridgwater River, and was the first specimen seen by Col. Montagu.—*Wm. Baker; Bridgwater, December 20, 1849.*

“Bridgwater, June 4, 1814.

“Dear Sir,

“I have just obtained a bird which is in the list of your desiderata, and I therefore hope it will be acceptable to you. * * *

“As the bird agrees in every respect with the description given of the stork (*Ardea Ciconia*), except that it is brown or cinereous everywhere but on the belly, which is white, I suppose it to be the young bird of that species. I cannot indeed find, on a short examination of the books which I have on the subject, that such changes take

place or appear previously to those mentioned to belong to that bird, but, reasoning from analogy, I think it is probable to be so. It was shot in one of the moors about five miles south from hence, by the same person who shot on the same spot a spoon-bill, on the 25th of November last, as I think I before mentioned to you. What injury this poor fellow has received besides a low fracture of the wing I have not time to examine before the post goes; but the man assures me it has fed on eels and other small fish since Tuesday last, the 31st ult. * * *

"I am, my dear sir,

"Yours obliged, &c.,

"To Geo. Montagu, Esq."

"ROBT. ANSTICE."

"Knowle, June 6, 1814.

"My Dear Sir,

"Your kind favour is just received; and as you seem desirous of hearing from me immediately, supposing it will reach you before the bird takes its departure, I have taken my pen to say that the bird will be acceptable to me, either dead or alive. It is not easy for me to determine, by your short description, what it may be; and I confess I should not expect, from the history of the stork, as far as I have been able to learn, that it can be of that species, because at this season most birds appear in mature plumage.

"It is true the stork is brown, as well beneath as above, in its first plumage; but I suspected the whole assumed the white attire on the return of the following spring. If it should turn out to be what has been called the black stork (*Ardea nigra*), which is also an European species, it would be a greater rarity, as at present no instance is on record of its having been seen at large in England. The upper part of these birds is of a violet-brown, in some parts glossed with green; from the breast to the vent white; throat and neck brown, dotted with white. * * *

"Yours ever, dear sir,

"G. MONTAGU."

"To Robt. Anstice, Esq."

"Knowle, June 12, 1814.

"Dear Sir,

"Knowing that you will be anxious to hear of the arrival of the stork, I cannot delay repeating my best thanks for so valuable an acquisition. * * It arrived at Knowle about 5 o'clock in the evening, when it took some fish as soon as liberated. The poor fellow was put into a walled garden, having a large pan of water. * * * If I can furnish fish enough, or by degrees induce him to eat flesh, he is likely to live and repay me by the examination of his manners, and perhaps some change of plumage, which I think a few dark glossy green feathers on his back indicate. It is certainly the black stork, and the only instance of this bird having varied its longitudinal flight so much to the west. * * * By drooping the left wing I conclude it has a tendinous wound, which prevents flying. * * * How fortunate it is that this solitary instance of this eastern inhabitant straying into this country should have come to the knowledge of a scientific person! Had it not been for your zeal, so valuable an acquisition to the fauna of British birds would have most probably perished

in obscurity. We shall now be able to record it, and, if it lives, with many advantages. * * *

"G. MONTAGU."

"To Robt. Anstice, Esq."

"Bridgwater, June 18, 1814.

"Dear Sir,

"I assure you such were the docility and appearance of superior intellect in my friend Stork, during his stay with us, that I had no small struggle with my feelings on parting with him, especially on so perilous a journey, considering the confinement necessary for the poor fellow, whose length of limb I was much afraid would make a close package very uncomfortable at the least. I am therefore delighted in no common degree, and equally obliged by your early information, of his safe arrival at Knowle, and that he proved to be the *rara avis* you suspected him to be: pleased, therefore, as I should have been to have retained him, I am much more so to have placed him in your hands. * * * I wish to lose no time in answering your inquiries, as far as my information goes. * * * Some small soles were offered it, but they were refused; however the next morning they had disappeared. Some eels were put before him during the day, and the temptation was too great for him to resist: he immediately swallowed them in my presence.

"I got a friend to take a likeness of Mr. Stork on Monday, and really he stood for his picture as composedly and steadily as most gentlemen sit for theirs, and looked as if he perfectly understood what was going on. * * *

"His manners indicate him to be in some degree domesticated; but his plumage is, I think, too perfect for a bird which had been long under confinement. * * *

"ROBT. ANSTICE."

"To Geo. Montagu, Esq."

"Knowle, June 25, 1816.

"My Dear Sir,

"* * * * Our friend Stork is well, become quite tame, and comes to the call when hungry. It is evidently beginning to moult, by the apparent increase of dark glossy green feathers on the back. * * * I have by degrees induced it to eat flesh, so I have no fears of its starving. Frogs, its natural food, are as scarce in Devonshire (at least in this part), as toads, it is seldom I see either. * * *

"G. MONTAGU."

"To Robt. Anstice, Esq."

"Knowle, September 11, 1814.

"My Dear Sir,

"* * * * Your old friend, the stork, is in perfect health, and quite docile, consequently developing much more of its habits: unfortunately a frog in this county is nearly as rare an animal as himself, which I am sorry for, as I have no doubt—by his manner of searching in the grass—that those Amphibia constitute a great portion of its food. * * * He has been moulting slowly all the summer, and is not nearly completed now: as far therefore as I perceive the whole upper part of his plumage

will be a very dark green, like the green Ibis, which at a distance looks like dingy black, the head and neck excepted, which is not altered in colour.

"I am, my dear sir,

"Most truly obliged, yours,

"To Robt. Anstice, Esq."

"G. MONTAGU."

"Knowle, December 4, 1814.

"My Dear Sir,

"Friend Stork is well and very tame, but does not moult kindly: he is becoming much darker, and will, I expect, by the spring be all over a green-black. I have been waiting this change, in order to give in a paper to the Linnean Society concerning him.

"G. MONTAGU."

"To Robt. Anstice, Esq."

"Bridgwater, December 6, 1814.

"Dear Sir,

"I am glad to find the *Leptocephali Morrisii* which I supplied you with prove so interesting.

"I am also pleased to hear that the stork is well, and hope he will put on his best dress before the spring, to enable you to make a favourable report of him.

"Yours affectionately,

"ROBT. ANSTICE."

"To Geo. Montagu, Esq."

"Knowle, April 4, 1815.

"My Dear Sir,

"The stork is so much changed in plumage that it would scarcely be known by the drawings taken when first captured. It now better accords with *Ardea nigra* than heretofore, for at a distance the whole upper parts appear black, but on a nearer view are found to be dark glossy green, except the upper part of the back, which has a resplendence of purple, each feather margined with dark green. As its plumage is now completed, as to the usual moulting, I have sent in a paper to the Linnean Society, with an account of its capture and natural history, as far as I have been able to ascertain them. I have described three intermediate or successive changes. * *

"G. MONTAGU."

"To Robt. Anstice, Esq."

Occurrence of the Great Snipe (Scolopax major) at Lewes.—A specimen of this scarce bird was shot in the Levels, near this town, in October last.—*J. B. Ellman; Lewes, December 10, 1849.*

Occurrence of Scolopax Brehmi (?) near London.—On the 27th of December last I shot a snipe exactly corresponding with *Scolopax Brehmi* in the relative length of the tail-feathers; and on Saturday (January 5th) I shot another, having the two outer tail-feathers exactly of the same length. In all other respects both of these specimens exactly corresponded with the common snipe. Now supposing the first to be *Scolopax Brehmi*, what is the second? However, as soon as the skins are dry, I will give

them to you to add to your collection. I take them to be slight varieties of *Scolopax Gallinago*.—*Frederick Bond; Kingsbury, Middlesex, January 7, 1850.*

On some of the Habits of the Waterhen (Gallinula chloropus).—Recent contributions to the 'Zoologist,' on the subject of the roosting of the common gallinule in trees, have caused it to strike me as very remarkable that so prominent a point of observation on the habits of this very common and very easily observed bird should so long have escaped the notice of naturalists, and of most writers on the subject. No English naturalist that I am aware of, since Willughby, has adverted in his writings to its very common habit of perching in trees. Montagu, indeed, says it does so "when alarmed," and Macgillivray that it sometimes perches on the stump of a willow; but neither seems to have credited the fact recorded by Willughby in these words: "*Ramis insidet, sed iis tantum qui densi et aquis vicini sunt.*" In the latter part of this assertion, indeed, he is not *quite* correct, as although thick bramble-bushes and evergreens, holly, laurels, spruce firs, &c., are its favourite resorts as roosting-places, it by no means makes use of these only to sit upon; but the "father of British Ornithology" is here, as elsewhere in cases where he has had the opportunity of seeing for himself, in the main correct. The bird is extremely abundant in my own county (Leicestershire) and neighbourhood; and as attention has been drawn to the subject, it may not be amiss to record the observations of this bird's habits, which numberless opportunities have rendered familiar to myself. The gallinule not only *roosts* in trees,—for which purpose, as I have remarked, it usually selects a thick bush or an evergreen,—but in the day-time, in winter more particularly, it may very commonly be observed sitting in such situations, and usually *close by the bole*, if the tree be a larch or spruce. Whenever thus seated, shy as this bird is upon the water or on land, it may be very easily approached. I have frequently gone quite close to the tree without disturbing its occupant, nor does it usually quit its seat unless frightened by noise or by shaking the tree. Where there is a "spinney" of firs, low and thick, a good thicket of brambles, or copse of evergreens, in the vicinity of a pond or stream tenanted by these birds, numbers (if the place has been previously undisturbed) may be found on an autumn or winter's afternoon, especially if the weather be cold, congregated together. You may then, by shaking the boughs, send out one or two at a time, affording an easy shot in their flight, should you or your companions be armed and inclined to shoot them, till all are gone. I have known this method frequently adopted, and have myself aided in battues of the kind, where the birds are plentiful enough. Their tameness, however, under such circumstances, is usually their protection with me, and I have often had my gun-muzzle within a yard of them and left them undisturbed. When at roost, I have no manner of doubt, they may be taken with the hand, their whereabouts of course having been previously marked. But neither are these *rami densi* the gallinule's only arboreal seat. I have often met with them in the day-time, sitting on boughs of small trees, ash or willow, or perhaps a hawthorn, overhanging their pond or stream, quite exposed, and visible at many yards distance: even then you may go, very quietly, almost up to them; and you may see them, as I have done, bridling up their heads with a jerk, flitting up their tails, and uttering their ready half-barking half-crowing cry at your approach, without an attempt to evade you further than by walking along the boughs away from you. In doing this, walking namely along boughs, these birds evince a singular faculty. I have seen them walk along long bending twigs, that descended and danced with their weight, with the same ease and security as over the broad leaves of the

water-lily or the floating Potamogeton, and this, apparently, by a power of balancing their bodies, which must far surpass that of the expertest rope-dancer, as their long toes—incompetent to grasp so small a perch—could not lend more than a very trifling aid to their holding on. This act I have more than once viewed with admiration; and it is a pretty sight, too, to see the bird thread its way out of the middle of a thick thorn-bush, which it will do most cleverly, and apparently without ruffling a feather: and these things must, I should think, have been noticed by many and many a sportsman besides myself. Besides their ordinary food, mollusks, grain, grasses and water-plants, they are partial in hard weather to the water-cress which the unfrozen running streams enable them to procure abundantly. They may very commonly be seen in rick-yards near their haunts, picking up grain, in company with pheasants or pigeons, or sometimes both, with whom they appear to be upon terms of the utmost good-fellowship. I know well a roosting-place of theirs where they and the pheasants slumber in company, and where, too, a whole tribe of redwings and hosts of little birds pass the winter's night. Fieldfares and redwings, I may remark, *en passant*, in these parts roost *in trees*, generally copses and small plantations, and, so far as I have ever observed, *not* on the ground. In the breeding-time the waterhens appear to fly a good deal by night; at least at that season it is common to hear their cry in the air as late as ten or eleven o'clock: I have frequently wondered what can cause this. Their eggs are usually seven or eight, sometimes fewer, sometimes nine or ten; and they would be far more numerous than they are but for their many destructive enemies, the rat, the stoat, and, worst of all, the *pika*. As it is, I know no spot in my own neighbourhood that affords them food and shelter, be it pond, stream or "pit," where they are not to be found. They afford excellent eating, either cooked like a duck or in pies. The thick black down that covers the skin requires strong measures to get it off: scalding I believe, is the most efficacious. Aldrovandi speaks of them as having been in his time an esteemed article of food.—*A. Evans; Market Bosworth, December 20, 1849.*

Occurrence of the Pink-footed Goose (Anser branchyrynchus) near York.—A very fine specimen of the pink-footed goose was shot on the 15th of January, at Haxby, five miles north-east of York, and came alive into Mr. Graham's possession. It was one of a flock of six, but its companions all escaped.—*W. M. E. Milner; Nunappleton, January, 1850.*

Occurrence of the Swan Goose (Anser Cygnoides) in Norfolk.—I have just seen in the flesh, a remarkably fine and perfect specimen of the *Anser Cygnoides*, lately taken in a Norfolk decoy, and purchased by a poulterer in Leadenhall Market. This noble bird seems fitted for all climates in a state of domestication: it is a common ornament of lakes and ponds, not only in this country but on the Continent. Bewick, who includes the swan goose in his 'British Birds,' informs us that in his time it was pretty common in a wild as well as domesticated state, but does not descend into particulars or give any record of individual instances of its occurrence. It seems probable that its occurrence at large is generally to be traced to some sufficient cause, as the escape of a young bird bred in a state of domestication, and before the bill, feet or wings had received any of the marks and mutilations so commonly inflicted on them.—*Edward Newman; January, 1850.*

Occurrence of the Merganser (Merganser serrator) near Montgomery.—A merganser was shot on the river Severn, at Bronafron, near Montgomery, by a friend of mine, on the 2nd of this month. There were three of them in company, and they rose from

under an overhanging bank on the river side. The specimen shot was of very fine and full plumage.—*J. M. Jones; Montgomery, North Wales, January 15, 1850.*

Occurrence of the Red-necked Grebe (Podiceps rubicollis) near Burton-on-Trent.—While staying at the house of a friend, at Burton-on-Trent, in July last, I saw a very fine bird of this species, which had been shot on the river Trent, in the month of April, previous to my visit. It was obtained in a part of the river between Burton and Stapenhill. In the spring and summer months a considerable quantity of sedge, rushes, &c., grow to some height above the surface of the river, and appear to offer a very favourable locality for birds of this class to remain in.—*James C. Garth; Knaresborough, January, 1850.*

Occurrence of the Black-throated Diver (Colymbus arcticus) in the Thames.—A male specimen of the black-throated diver was killed yesterday (January 21st), at a place called the Saltings, near Purfleet, on the Thames: it was brought here in the flesh.—*Edward Newman; 9, Devonshire Street, Bishopsgate, January 22, 1850.*

Curious Capture of the Red-throated Diver (Colymbus septentrionalis).—On the 10th of December one of Mr. Clifton's keepers brought me a live bird of this species, which he found in a wire snare that had been set for rabbits. It is almost an everyday occurrence to hear of their being taken in stake-nets, &c.; but how this bird should have found its way into the snare seems strange, there being no pool of water within some distance of the place.—*C. Nelson, M.D.; Lytham, December 15, 1849.*

Occurrence of the Little Auk (Alca Alle) at Newmarket.—A specimen of the little auk was picked up alive, but in a very exhausted state, at Newmarket Heath, early in November last, and is now in the collection of Mr. Barlow, of Cambridge.—*Frederick Bond; Kingsbury, Middlesex, January 7, 1850.*

Occurrence of the Little Auk near Malvern.—A specimen of the little auk was lately picked up near Great Malvern, in a very exhausted state.—*Martin Curtler; Bevere House, Worcester, December 12, 1849.*

Occurrence of the Black Tern (Sterna nigra) near Worcester.—Two specimens of the black tern were killed near Worcester on or about the 12th of November last.—*Id.*

Occurrence of the Arctic Gull (Lestris parasiticus) near Worcester.—A specimen of this rare skua was lately shot on the river Severn, near Worcester.—*Id.*

Occurrence of the Little Gull (Larus minutus) at Redcar, and some Particulars of its Plumage.—I have now in my possession a fine specimen of the little gull, shot here two days ago, having the whole of the insides of the wings (except the primaries and secondaries, which are tipped or margined with white) of a black or dark lead colour, and the breast to the vent slightly tinged with reddish buff. In other respects it agrees with Mr. Yarrell's description (in his 'British Birds') of a specimen of the little gull given to him by Mr. Gould.—*T. S. Rudd; Redcar, January 18, 1850.*

Occurrence of the Fork-tailed Petrel (Thalassidroma Leachii) near Worcester.—A specimen of the fork-tailed petrel was shot near Worcester on the 12th of November.—*Martin Curtler; Bevere House, Worcester, December 12, 1849.*

Occurrence of the Fork-tailed Petrel in Warwickshire.—On the 21st of last month I received a specimen of this species, in perfect condition, which had been taken up dead on the estate of J. R. West, Esq., at Alscot, near Stratford. On examination it proved to be a male, and had a shot inbedded in the pectoral muscles, which might have partly been the occasion of the death of the bird during its passage across the interior. Six examples of the fork-tailed petrel in Warwickshire, and one in the

neighbouring county of Worcester, have fallen under my inspection within the last seven years, and I have heard of several others. It is most singular that all of these were of the above species; and I cannot ascertain that a single specimen of the common species, *Thalassidroma pelagica*, has ever occurred near here. Is it not possible, and even probable, that many of the recorded instances of petrels occurring far inland may be referred to this species?—*Robert F. Tones; Welford, Stratford-on-Avon, December 20, 1849.*

Occurrence of the Hawks-bill Turtle (*Chelonia imbricata*) *off the Yorkshire Coast.*—During my absence from Redcar last summer three of our fishermen, on their passage from that place to Hartlepool, found a large specimen of the hawks-bill turtle of Bell, floating dead upon the sea.—*T. S. Rudd; Redcar, January 4, 1850.*

Occurrence of the Green Lizard (*Lacerta viridis*) *at Herne Bay.*—Can any of the correspondents of the 'Zoologist' give me information regarding the haunts, time of appearance and other particulars of the green lizard (*Lacerta viridis*, Linn.), which I am told by very competent authority has been found to be quite frequent and even abundant at, or in the neighbourhood of, Herne Bay. I may add that there can be no doubt about the species, and that it is certainly not merely the smaller green lizard of Poole (*L. agilis*, Linn.), but identical with the species long known to inhabit Guernsey, as my friend Professor Bell has received a specimen from Herne Bay, but not in time to notice the discovery in the second edition of his 'British Reptiles,' lately published. Mr. Bell supposed *L. viridis* must be only naturalized in its Kentish locality, but the difference of climate and latitude between Guernsey and Herne Bay is not so great but that we may conceive it very possible this beautiful reptile may be really indigenous to both places. It was only till very recently that the nativity of the edible frog (*Rana esculenta*, L.) was fully ascertained in England, although rumour had placed it long since in our indigenous lists. If I am not mistaken, the *L. viridis* of Guernsey has been said to have been captured in this country, in which case we have now a similar confirmation of the fact, as in the instance of the *Rana esculenta*.—*William Arnold Bromfield; Eastmount, Ryde, Isle of Wight, December 22, 1849.*

[This is a fact of unusual interest. I shall be much obliged for further information and a drawing, if any correspondent can supply these desiderata.—*E. Newman*.]

On the Green Lizard.—I hope the editor of the 'Zoologist' will have the kindness, as soon as possible, to gratify the curiosity which he has roused by his short notice on this subject, in the notices to correspondents on the wrapper of the number for January. We must, before we assent to the discovery of a "new British Reptile," learn how far it has been traced in the neighbourhood in which it has been discovered. I have several times had reasons for suspecting the green lizard might be British, independently of the passage in White's 'Natural History of Selborne,' and the stories of large lizards, met with elsewhere. Seven or eight years ago a schoolfellow of mine at Eton, a native of Guernsey, assured me he had seen lizards in Devonshire precisely similar to the green lizards of his own island, which latter, if I remember right, he had often caught and kept in confinement. Nearly two years since, a learned profes-

sor of the University of Edinburgh, mentioned that he had dissected a "green lizard," brought by a botanical party from the Clova Mountains, of which, however, the remnants were not to be found, when search was, at my request, made for them. I hope these two additional indications of the probability of its being British may not be unacceptable. I may add that last summer, in answer to my inquiries in Sutherlandshire, I was told a large species of lizard was stated by the shepherds to be found in a particular district, Moudale, which my imagination led me to believe was the green lizard. However, on further inquiry in the place mentioned, the accounts seemed far more applicable to the common warty newt. I saw the common lizard in plenty, though not extending to the Shetland or Faroe islands, and I did not see it in Orkney.—*John Wolley; Edinburgh, January 6, 1860.*

Foot-prints of a Reptilian Quadruped (Sauropus primævus) in the Old Red Sandstones of North America.—"The object of this communication is to announce that I have discovered the foot-prints, in bas relief, of a *reptilian quadruped*, lower in the series than has yet been observed. On the 5th of April last, in the examination of the strata in the gorge of the Sharp Mountain, near Pottsville, Pennsylvania, where the Schuylkill breaks through it, a large mass of remarkably fine old red sandstone attracted my attention. Imprinted upon it, I was surprised to find six distinct impressions of foot-marks, in a double row of tracks, each mark being duplicated by the hind-foot falling into the impression of the fore-foot, but a little more advanced. The strata here are tilted a little over the vertical, and the surface of rock exposed was about twelve feet by six feet, the whole of which surface was covered with ripple marks and the pits of rain drops, beautifully displayed in the very fine texture of the deep red sandstone. The six *double impressions* distinctly show, in the two parallel rows formed by the left feet on the one side and the right feet on the other, that the animal had five toes on the fore feet, three of which toes were apparently armed with ungual appendages. The length of the double impression is four and a quarter inches; the breadth four inches; the distance apart in the length of the step of the animal thirteen inches; across, from outside to outside, eight inches. The mark of the dragging of the tail is distinct, and occasionally slightly obliterates a small part of the impressions of the foot-marks. The ripple marks are seven to eight inches apart, and very distinct, as well as the pits of the rain drops. These foot-marks assimilate remarkably to those of the recent Alligator Mississippiensis, and are certainly somewhat analogous to the Cheirotherium. The geological position of this reptilian quadruped is of great interest, from the fact, that no such animal remains have heretofore been discovered so low in the series. Those described by Dr. King, in the great western coal field, are only 800 feet below the surface of the coal formation. (No. 13, of Prof. Rogers, the State Geologist). The position of the Pottsville "foot-marks" is about 8500 feet below the upper part of the coal formation there, which is 6750 feet thick, according to Professor Rogers, and they are in the "red shale" (his No. 11) the intermediate silicious conglomerate (No. 12), being stated by him to be 1031 feet thick at Pottsville. These measurements would bring these foot-marks about 700 feet below the upper surface of the old red sandstone. A mass of coal plants exists immediately on the northern face of the heavy conglomerate, here tilted ten degrees over the vertical, and forming the crest and "back-bone" of Sharp Mountain. This conglomerate mass is about 150 feet thick at the western side of the road below Pottsville. On the same road-side, about 1735 feet from these coal plants, is the face of the rock, tilted slightly over the vertical, and facing the north. It is proper to state,

that the limestone of the old red sandstone exists here, about two feet thick, and underlies these "foot-marks" sixty-five feet. On the slab there are obscure remains of other organized matter; small spots, with filamentous radiations, and a small bone or seed-like mark, which is difficult to make out. I was fortunate enough to obtain these impressions in a large and heavy slab, which is now in my possession. It is my intention, when more at leisure, to make a more lengthened and accurate description, with correct figures, of this remarkable and interesting specimen, which exhibits on its table the record of the oldest saurian yet observed. When finished, the paper will be submitted to the Society for publication in the Transactions. In the meantime, I propose the provisional name of *Sauropus primævus*."—*Proceedings of the American Philosophical Society.*

[The correspondence of these foot-prints with those of the American alligator is remarkably interesting, as affording a clew to the place in the system occupied by *Cheirotherium*.—*E. N.*]

Occurrence of Hawken's Gymnetrus (Gymnetrus Hawkenii) on the Yorkshire Coast.—Yesterday, January 3rd, a person walking on the beach near Redcar, found a specimen of *Gymnetrus Hawkenii*; it was still living, but somewhat mutilated, the extremity of the tail being wanting, and portions only of the ventral and pectoral fins remaining. The following particulars may be interesting:—

	ft.	in.
Length (portion of tail wanting)	10	11
Depth ●	1	0
Thickness	0	3½
Weight	66 lbs.	

This specimen agrees very well with the description you gave (Zool. 2460) of the Cultercoats riband fish, as to colour and shape, but it has no crest in front of the dorsal fin, and as no mention is made of the ventral fins in your description, I presume it had none. The present specimen has certainly possessed ventral fins, as their remains are still apparent in two strong spines, one of them an inch, the other three quarters of an inch in length. A pilot, named Slater Potts, found a much larger specimen on this coast several years ago: it measured twenty-four feet in length.—*T. S. Rudd; Redcar, January 4, 1850.*

Occurrence of the Maigre (Sciæna Aquila) on the Yorkshire Coast.—On the 24th of December, [1849] a fine specimen of the maigre was found on our coast, between Redcar and the Tees Mouth; it measured five feet and one inch in length.—*Id.*

The Tinearist's Calendar for February.—Let not the collector imagine nothing is to be done during winter, all the species which exist, are somewhere during the winter, either as egg, larva, pupa or imago, and in one or other of these states they may be found. Most of the Crambi are now larvæ, feeding at the roots of moss; the Galleriæ are also feeding or torpid in honeycomb; some of the Phycidæ larvæ may

perhaps be found in Fungi; the *Talaporis* larvæ are now in their cases, feeding on grass (?), lichens, &c.; and the larvæ of *Tinea masculine*, and other allied species, may be found in their cases among the fallen leaves, in woods: the imago of *Micropteryx purpurella* appears towards the close of the month, frequenting birch trees: *Plutella fissella*, and *Depressaria appana*, *characterella*, *arenella*, *litarella*, *Heracleana*, &c., all hybernating, will occasionally be met with; several of the *Gracilaria* also hibernate: the pupæ of the various *Lithocolletes* are to be found in dead leaves.
—*H. T. Stainton.*

Proceedings of the Zoological Society.

Monthly General Meeting, January 3, 1850.—W. SPENCE, Esq., F.R.S., in the chair.

The Lord Bishop of Oxford, E. W. H. Holdsworth and T. Paine, Esqrs., were proposed as candidates for the Fellowship.

[The Council issued an address to the Members, from which the following passages are extracted.]

"The number of visitors admitted to the gardens during the year 1849 was 168,896; presenting an increase, as compared with 1848, of 25,265; and as compared with 1847, of 75,349.

"The income of the Society has increased in a commensurate degree, having been for

1847.....	£ 7765	15	6
1848.....	£ 8166	1	3
1849.....	£ 8771	9	8

"The collection of living animals has been augmented by additions of great importance and value, including sixty-five species which had not been previously exhibited; and, notwithstanding the reduction of duplicates which has been effected wherever it appeared advisable, the total number in possession of the Society on the 31st of December amounted to 1352, namely,

Mammalia	354
Birds	853
Reptiles	145

presenting a numerical increase of 180 individuals as compared with the corresponding date in 1848, and of 463 as compared with 1846.

"The completion of the portion of the new aviary which was commenced in 1848, the erection of a wing at the western end of the giraffe house, and the interior arrangement of the reptile house, have supplied some important desiderata in the means of conservation, and added largely to the scientific utility as well as to the attractiveness of the menagerie.

"The Council have great pleasure in being able to announce, at this early period, that they have already received advice of collections of various importance, which are in progress of formation, or already shipped, from

Singapore.....by Capt. the Hon. H. Keppel, R.N.

Ceylonby A. Grant, Esq., M.D., and A. Grace, Esq., Deputy Queen's Advocate.

Bombayby Alexander Elphinston, Esq., and A. Shaw, Esq., H.E.I.C.
Civil Service.

Whydahby J. Duncan, Esq., H. B.M. Vice-Consul.

St. Luciaby Lieut. Tyler, R.E.

South Carolina...by J. Davis, Esq., M.D.

In addition to which the Council have had the gratification of learning from the Hon. C. A. Murray, that His Highness the Viceroy of Egypt has presented to the Society a young living hippopotamus, which arrived safely in Cairo on the 14th of November, and was thriving there up to the date of the last despatches. This most valuable and interesting gift was accompanied by a beautiful lioness and cheetah; and Mr. Murray was further informed by the Viceroy, that a party of his troops remained out on the White Nile expressly charged with the duty of securing a young female hippopotamus, which was also destined for the Society. That expedition was commanded by His Highness, in consequence of Mr. Murray's representation of the great interest with which the acquisition of this extraordinary animal in a living state would be regarded by the naturalists of Europe, and the credit which it would secure to this Society as promoters of the science of Zoology.

"The able manner in which Mr. Murray preserved the animals presented to the Society by his late Highness Ibrahim Pasha, and others collected by himself in the winter of 1848-9, until their embarkation in June last, induces the Council to look forward with confidence to the probability of his surmounting the difficulties attendant on the maintenance and transport of the hippopotamus; which without doubt will prove to be the most singular and attractive inmate ever introduced into the menagerie.

"It is proposed, if no unforeseen obstacles intervene, that the hippopotamus shall be shipped in the beginning of May, with the view of its being displayed to the Society at the earliest period of the summer at which its removal can be attempted with safety."

Evening Meeting, January 8, 1850.—W. YARRELL, Esq., V.P., in the chair.

Professor Owen read a paper in continuation of his "Account of the Anatomy of the Rhinoceros," which contained a description of the digestive organs and abdominal viscera.

Mr. Gray read and commented on a list of shells collected in Ceylon, by Mr. Layard. He also communicated an extract from a letter addressed to him by M. Schlegel, the celebrated curator of the Royal Museum at Leyden, containing the characters of a new genus of Batrachians (*Myobatrachus*, *Schl.*), the type of which, *M. paradoxus*, from Swan River, Mr. Gray was inclined to consider identical with the toad described by himself under the name of *Breviceps Gouldii*, in the Appendix to Capt. Grey's 'Travels in Australia.' But even admitting this to be the case, Mr. Gray assented to the value of the generic distinction proposed by M. Schlegel.

Professor Owen read a paper by Professor Van der Hoeven, of Leyden, on the "Anatomy of *Nautilus Pompilius*," which was illustrated by a series of carefully executed drawings, made by the author in the course of his dissections.

The meeting adjourned to Tuesday, January 22nd.

Proceedings of the Entomological Society.

January 7, 1850.—G. R. WATERHOUSE, Esq., President, in the chair.

Mr. Busk, who was present as a visitor, exhibited two kinds of silken web, forwarded to him by Mr. Kincaid, an extract of a letter from whom was read, stating that "they were the production of a species of silkworm found in the mountains near Merida, Maracaybo: the insects spin, or rather weave it from tree to tree, sometimes to the extent of several feet in length and breadth." This production appears to have been hitherto quite unknown in this country. Mr. Busk also presented two specimens of it, mounted on glass slides, for the microscope.

A portrait of the late Edward Doubleday, by Maguire, was presented by George Ransome, Esq., accompanied by a letter from Mr. Bowerbank, stating that copies at 5s. each would be furnished to subscribers. Mr. Douglas then read the following memoir:—

"The death of my lamented coadjutor, Mr. Edward Doubleday, affords a melancholy opportunity, which I trust I may be permitted to use, of placing upon our minutes a brief testimony to his worth. Educated in the midst of woodland scenery, the love of Nature—in him strongly innate—grew with his growth and increased with his strength, and led to an intimate acquaintance with the Natural History of his native district. In course of time his enthusiasm led him to North America, and he spent two years in visiting its magnificent scenery and collecting objects of Natural History, chiefly insects, of which he brought home immense quantities. Subsequently he became attached to the British Museum, where, up to the time of his illness, he laboured most assiduously, as the present state of the Lepidoptera in that Institution abundantly testifies. He also contributed largely to the entomological literature of the day, but, most of all, his name will be remembered in connexion with the 'Genera of Diurnal Lepidoptera,' a work which for beauty and accuracy has no equal, though, unfortunately for us, he has not lived to see it completed. Above all we have reason to deplore his loss as a man. Doubtless he had his failings, for, as our great poet says,

'You, Gods, will give us
Some faults to make us men;'

but these were cast into the shade by his better nature; and besides those who had the pleasure of knowing intimately his good qualities and his great and varied attainments, many others will ever lament that they have been thus suddenly deprived of his friendship."

The President stated that he had no doubt but that all present who had known Mr. E. Doubleday would fully concur in the remarks of the Secretary, and proposed that, as a tribute of respect to his memory, all further business should be adjourned.—J. W. D.

[In consequence of the adjournment the reading of a paper by Mr. Stainton, on the genus *Micropteryx* of Zeller, was postponed; but as some of the species occur early in the year, I consider it a matter of importance that the following abstract, obligingly furnished by Mr. Stainton, be laid before my entomological readers.—E. N.]

This interesting and very distinct group of insects is sadly in want of investigation, and the metamorphoses of none of the species are known. Several of the known

species appear very early in the season,—for instance, *purpurella* in February, and *unimaculella* and *semipurpurella* in March,—and it is exceedingly probable that other equally early species lurk undetected. From the affinities of the group to the *Adelæ*, the larvæ of which are known to be case-bearers feeding on various plants, there is little doubt that the larvæ of these insects feed in a similar way; and if those collectors who take *Calthella* in plenty would devote a little of their time to the furtherance of science, by searching for the larvæ and pupæ of that insect, though they might not enrich their collections by so doing, they would have a better claim to the title of *entomologists*.

A. Head ferruginous.

1. *Calthella*, Linn. Anterior wings golden, with the base entirely purple.
Frequents *Caltha palustris*, in May.
2. *Aruncella*, Scopoli. ♀ Anterior wings golden, with the base purple on the costa; ♂ with two fasciæ and a spot silvery.
Not scarce, in June and July.
3. *Allionella*, Fabr. Anterior wings purple, with two golden fasciæ, and a golden spot towards the apex reaching neither margin.
Scarce, in May and June.
4. *Subammanella*, Stainton, Catal. Tin. p. 9.
5. *Rubrifasciella*, Haw. Anterior wings greenish golden, with a reddish spot on the costa at the base, a reddish fascia before the middle, and another bifurcate beyond the middle.

B. Head not ferruginous.

a. Head cinereous.

6. *Subpurpurella*, Haw. Anterior wings greenish golden, with a faint paler spot towards the anal angle.
Common, on oaks, in May.
7. *Semipurpurella*, Steph. Anterior wings purple, irrorated with pale golden; antennæ more than half the length of the anterior wings.
Common, on birches, in March and April.
8. *Sparmannella*, Fabr. Anterior wings golden, with numerous transverse purple fasciæ.
Scarce, on birches, in May.

β. Head dark fuscous; antennæ less than half the length of the anterior wings.

9. *Purpurella*, Haw. Anterior wings golden, with numerous irregular purple fasciæ, and the veins purple.
Common, on birches, in February and March.
10. *Unimaculella*, Zetterstedt. Anterior wings golden purple, with a conspicuous whitish spot at the anal angle.
Scarce, in March and April.

The difficulties in the genus commence with *semipurpurella*, which in my Catalogue I have lumped together with *purpurella* and *unimaculella* as one species: these are, however, truly distinct, and with fine specimens they are easily separated, though in the ordinary run of specimens found in collections it is no easy matter to say to

which they should be referred. One main reason for our specimens being so poor is that we do not collect them soon enough: they should be sought for in March; by delaying to collect them till April the specimens become wasted. I have no doubt many might be met with in February in forward seasons. Haworth distinctly states that Mr. Hatchett took two specimens of *purpurella*, *is copulé*, in February.

Proceedings of the Microscopical Society of London.

January 16, 1850.—GEORGE BUSK, Esq., President, in the chair.

A paper "On the Architectural Instincts of *Meliceria lingens*, an Animal of the Class Rotifera," by P. H. Gosse, Esq., was read. After some preliminary observations, Mr. Gosse stated that the subject of the present paper was an animalcule so minute as to be almost invisible to the naked eye, inhabiting a tube composed of pellets, which it forms and lays one by one. "It is," to use his own words, "a mason who not only builds up his mansion brick by brick, but who makes his bricks as he goes on, from substances which he collects around him, shaping them in a mould which he carries upon his body." This animalcule has been long known. In 1703 Leeuwenhoek discovered it at Delft, and described its appearance and habits in a paper published in the 'Philosophical Transactions' (vol. v. 176, abridged). It has since been noticed and described by various observers; and Ehrenberg, in his great work, not only details its former history, but also adds many valuable observations of his own. In one part, however, of his description, viz., the mode of preparing the pellet of which the tube is composed, he appears to have been mistaken; and it is the principal object of this paper to point out and correct this mistake. The animalcule is found attached to the roots of Lemna, or to the narrow leaves of Chara, Nitella, and other subaquatic plants. Its appearance is that of a tube, of a dark yellowish or reddish brown hue, composed of a multitude of round pellets, set very regularly, and apparently agglutinated by a cement insoluble in water. Out of this tube is protruded an animalcule, exhibiting, when fully expanded, a short stem carrying two large petal-like disks set round with cilia, and two smaller leaflets opposite to the former, also ciliated, and thus giving it the appearance of a flower of four unequal petals. Its most remarkable anatomical feature is a round cup-shaped cavity situated below the ciliated lobes, on the ventral aspect, within the margin of which a rapid rotation of cilia goes on. The rotation of the cilia of the lobes causes a current which carries any extraneous substances within its influence into this cup, where they are apparently consolidated. Upon adding some carmine to the water containing this animalcule, the particles were seen to run in a constant stream through one of the divisions of the petals, and, proceeding round a part of the body of the animal, were deposited in this little cup-shaped cavity, where they were whirled about with great rapidity, and formed into a kind of pellet. Imagining that this organ might have something to do with the construction of the tube, and a favourable opportunity occurring, Mr. Gosse watched the creature attentively, and soon had the satisfaction of seeing it bend itself forward, deposit a pellet on the edge of the tube, and again proceed to fill the now empty cup with another mass of particles of carmine, which, when formed into a pellet, was deposited in a similar manner: this was repeated at

intervals of from $2\frac{1}{2}$ to $3\frac{1}{2}$ minutes, until a considerable number of dark red pellets had been added to the former yellowish brown layer. He was thus enabled to ascertain decisively that this cavity was an organ expressly formed for the agglomeration of the pellets of which the tube is formed; and consequently that the opinion of Ehrenberg, that these substances were the excrements of the animal, was incorrect. He was confirmed in this by subsequently finding that the anal aperture was situated on the side opposite to that on which the circular disk occurs, and also much lower down. Mr. Gosse concluded by giving the opinions of Ehrenberg and of Leeuwenhoek upon the formation and deposition of the pellet, those of the latter agreeing more nearly with his own observations than those of the former.—J. W.

*Extracts from the Correspondence of Mr. H. W. Bates, now forming
Entomological Collections in South America.*

(Continued from page 2668).

I HAVE been induced to insert the following extracts from my brother's letters to me, partly from the example of my friend Mr. S. Stevens (Zool. 2663) and partly from the belief I entertain that anything relating to one who has left home, kindred, society and all, for the purpose of extending our knowledge of "created things," would be interesting to every naturalist, and consequently to the readers of those interesting pages, the 'Zoologist.'

It is with great pleasure I am enabled to corroborate the statement of Mr. Stevens, that "notwithstanding the many hardships he has undergone his health continues most excellent, the climate fortunately being very delightful and healthy." Upon this subject he says, "Notwithstanding the marshes and sultry heat, the climate is undoubtedly one of the most healthful in the world. I am still better and stronger than when I last wrote to you, and English people who have resided here ten, twenty and forty years, retain their florid complexions and 'John Bull' appetites." Again, "The climate of this country is most delicious: it is impossible to imagine, in England, the charming constant warmth and purity of the atmosphere, it being mild until about 9 o'clock, when it begins to wax hot, but not uncomfortably so. I walk in the sun all hours of the day without the slightest languor or inconvenience. About 4 in the afternoon a fanning delicious breeze comes up from the sea, and the evenings are similar to the hottest summer ones in England." This was the first month of the dry season.

One circumstance which rather astonished me was, that all insects, but more especially the Lepidoptera, are more numerous and brightly coloured during the wet season than the dry.

In conclusion, I would observe that his "letters home," being designed to entertain, are of course rather desultory, and more amusing than scientific.—*Frederick Bates; King Street, Leicester, January 7, 1850.*

"Parà, August 16, 1848.

"With regard to the insects of this lovely country I cannot hope to give an adequate idea of their interest and beauty: they are not numerous. In a hard day's search I cannot get more (leaving half-a-dozen common species) than about thirty to fifty specimens of Lepidoptera and twenty Coleoptera; but nearly all will be different species. I number now 460 different species of butterflies alone, and every time I go out take some new species. They are not found in open places, but in the dense shady pathways of the forest and second-growth woods, flitting across the pathways or settling on the leaves, one at a time. Coleoptera and others are all on the wing like Lepidoptera, all insects being very active and full of life. In open places and gardens the butterflies are chiefly large yellow ones, of the genera *Gonepteryx* and *Callidryas*; a few large swallow-tails, *Papilio Thoas*, *Torquatus*, *Agavus*, &c.; a few whites, *Pieris Monuste*, &c.; and many species of *Euterpe* and *Terias*. The splendid *Cethosia Dido*, a fritillary or two, *Danais Archippus*, a few orange-coloured species of *Cethosia*, and several species of long-tailed skippers: all these it is almost impossible to capture. But in the shady coffee shrubberies there are many species of *Papilio*,—*P. Arbatus*, *Tullus*, &c.,—and many species of the graceful *Heliconii*, some with transparent wings, and many other things very easy to take. In the woods of second growth, which are the skirts or beginning of the 'Forest,' where wood has been cut more or less, I get the splendid *Papilios*, *Sesostris*, *Proteus*, and many others velvety black with green and crimson bands and spots. In the 'Forest' there are fewer insects, and all local and rare; about twenty species of *Satyridæ* (like our *Hipparchiæ*), some having transparent wings with patches of rosy and blue colours, such as *Hectera Piera* and *Esmeralda*. There is also a countless variety of small species, of varied hues and patterns, of the families *Erycinidæ*, *Theclidæ* and *Hesperidæ*. In the *marshy* parts of the forest, where splendid palm trees, with feathery leaves fifteen and twenty feet long, curve over the pathways, many very glorious insects may be taken:

of the family *Nymphalidæ* some fifteen different genera! Then again in the forest are the *Morphoes*: *M. Laertes* (I think) is one blaze of dazzling blue above. Of the nocturnal *Lepidoptera* there are plenty of the family *Sphingidæ* here, a great variety of them being found on buildings, &c.; and in the woods are a great number of different kinds of *Ægeria* and *Anthrocera* or *Ino*."

"Parà, February 24, 1849.

"After returning from the 'Tocantins' I remained here two months, Wallace going to Marajò. It was then the height of the dry season. The low parts of the forest close by, which are now under water, were then passable, and I collected every day a splendid boxful of butterflies, besides other things, always taking something new; and, in spite of the furious heat of the sun and great fatigue, enjoyed myself amazingly. These swampy woods, which in similar latitudes on other continents breathe pestilence to Europeans, are here traversable with the greatest pleasure: narrow pathways thread through dense groves of palms; their fringed leaves, some twenty-five feet long, droop over, and the magnificent foliage of the wild plantains contrasts beautifully with their feathery leaves. Of course I lead rather a solitary life, only occasionally visiting English friends in the evenings; but I am always busy collecting, setting, making notes, &c. I had the greatest difficulty in getting to Carepi, being obliged to hire a passage in a *Cametà* canoe of a villanous Portuguese, who first agreed to take me for two milreas, and afterwards, when I had left my house and got my traps down to the wharf, asked me three times the sum. However, on the 7th of December, 1848, I was embarked once more on the waters of the Amazon. The canoe was of the largest kind, 30 tons; no cabin or any convenience whatever: besides myself there were four other passengers,—young Indian fellows going to a 'festà' at *Cametà*,—five sailors, and a runaway slave in irons. We crossed the channel opposite to Parà (three miles wide to the islands) at noon on the 7th, and they put me ashore at Carepi about 3 p. m. the next day. I slept in my clothes on deck all night. Landing at Carepi was a perilous job: it is situated (one large house and huts of negroes) on a sandy bay, in a part of the river clear of islands; the tree tops of the island of Marajò being just visible ten miles distant. From the city here the passage lies through narrow channels, between islands with forest scenery of the most glorious character conceivable.

"Carepi is a beautiful spot, but has one very great deficiency,—

there is nothing much to eat. I lived on salt fish and mandioca root nearly two months, having mandioca and fish for breakfast, and, to vary the thing, fish and mandioca for dinner. Once only I ventured on a hunting excursion with some neighbouring Indians, to shoot pacàs. We left at 2 o'clock, A. M.,—two darkies, self, and five dogs,—threading our way, with silent paddles, in the dark, through narrow shady creeks: we got somewhere out into a solitary creek, called Oojara, amongst the islands, by half-past 4 A. M.: we then slept till daybreak, when one of the Indians leaped ashore with the dogs, his knife and hatchet, and cut a hole through the dense wall of forest to enter. We shot two pacàs and a cutia in a very short time; but as the heat of the day came on we saw nothing more, so cooked and ate the cutia for dinner. The pacà is an amphibious Rodent, about the size of a spaniel; meat superior to sucking-pig.

“At Carepi there is always a fresh breeze from the sea, which is 100 miles below. A German has squatted in the woods close by, and was a capital companion for me, as he collected beetles: he had been a soldier at Rio Janeiro, and travelled on foot over a great part of the Brazils. We took a great many beetles here (although scarcely one is to be found around Pará), about a hundred species of Longicornes, ten Cicindelas, two Megacephala, large Brachini, and many curious genera—such as Ctenostoma, Agra, Brenthus, Inca, &c. Butterflies, birds, ferns, &c., were scarce; but the *Urania Leilus* was constantly flying by in front of the house, all travelling one way from sunrise to sunset. I was greatly annoyed by the bats here: they awoke me every night, flying around my hammock: I was always careful to keep my feet well covered, but once one bit me on the hip: some were two feet in expanse of wing; but the most dangerous bloodsucker is a small one with a gray breast. Although half-starved I enjoyed myself much at Carepi, and now find the city dull and inhospitable after the kindness of the neighbouring Indians.

“The wet season has now set in: it rains about $1\frac{1}{2}$ inch per day, and the water rolls down the streets in torrents. It is finest before breakfast, and I walk for pleasure most mornings in my old haunts. The butterflies are in fine plumage, and all more numerous in the glimpses of sunshine: plenty of Mechanites are out sailing about in their liveries of velvety black and red, with spots of bright yellow. The *Callidryæ* and *Rhodoceræ* are very numerous, of some eight or ten species. *Pieris Monuste* is common; and the glorious *Morpho Menelaus* is blazing about, flapping its huge wings of dazzling azure along the broad forest roads. There are more flowers too, and the

verdure is fresher. In the Una wood, within ten minutes walk from my house, the scenery is most splendid: a lofty forest borders the road, which is open and broad; but you see no tree trunks, for a dense drapery of climbing plants sweeps down from the tops of the trees to the ground: aloft the feathery heads of the palms Assai, Jupati, Miriti, Murumusù and Urucuri peep out.

"You wish me to preserve the skulls of animals: I have rather neglected this hitherto. On our voyage up the Tocantins we had absolutely no convenience for doing such matters, and it is very rarely we meet with Mammalia. There are plenty of animals (monkeys, &c.) always on sale in the city; to walk through some streets is like visiting a menagerie: there are a vast variety of parrots chattering Portuguese, and some most rare and beautiful monkeys: the other morning I saw a lovely little bluish gray one, no larger than a kitten a month old; it had white whiskers, and was very gentle. In the woods I sometimes see little dusky fellows scampering aloft amongst the branches: generally they are in flocks, and appear to be playing 'follow the leader,' making prodigious leaps one after the other. They are chiefly of the genera Cebus, Midas and Ateles; the Midas ursulus, a very small one, being common."

(To be continued).

On the Use and Abuse of a Collection of Insects.—I imagine all persons commence a collection of insects with the notion that they are thereby making something pretty to look at; yet the desire to have them named and arranged treads very closely on the heels of the desire to form a collection; and this naming and arranging is no child's play, no baby-work: if they are to be named, they must be named correctly; if they are to be arranged, whose arrangement should be followed? In the first place, how is the collector to ascertain the names of the species he has collected? He may consult books, and refer to descriptions or figures, or he may compare specimens with some collection which is supposed to be rightly named; and nine-tenths of our collections, I regret to say, are named in this latter way: they are copies of copies; they have never been compared with the original: if there was a blunder in the copy, still they copy it, having no notion of correcting it: the consequence has been that our collections of Lepidoptera, and probably of other orders, were a disgrace to the age and to the country. This is now to be rectified: a new era has dawned: a new Catalogue of British Lepidoptera (except the Fumææ) has appeared: all collections are to be named and arranged by this,—but are they not still all to be copies? Who refers to the original descriptions to prove their correctness? Every one takes on trust the saying of this or that entomologist, and names his cabinet accordingly.

Why is this so? This is an inquiring age: we do not generally take things on trust in this way, but we make diligent search and inquiry in order to prove them. If anybody were to declare to-morrow that our Machaon was not the Machaon of Linneus, how many persons would there be who could at once declare *it is*? As long as this is the case there is no fixity for our nomenclature; it is continuously liable to be altered; it stands, as it were, but on the dictum of one man. Now look at the evils of this changing, ever-shifting nomenclature: a person describes accurately, in one year, the habits, food and economy of some species, mentioning it by a Linnean name; a few years after, this name is found to belong to some other species; and twenty years afterwards, the probability is that an entomologist, reading this account of the "habits, food and economy," applies it all to the wrong species. The *characterosa* of last year and the *characterosa* of this year are rarely the same. The entomologist who collects has the advantage over him who does not, because in collecting he has many opportunities of observing the habits, &c., of species, thereby frequently proving their distinctness or identity: it is therefore extremely desirable that the professed entomologist should also be a practical collector, but it does not follow that because he keeps a collection he should keep a whole row of each species: no collector possessing a long string of a species which is to be seen in no other collection can have the slightest claim to the title of entomologist; he becomes really and truly a miser, and an object of universal contempt. There is now little doubt that the person who hoards for the sake of hoarding ought by rights to be considered as a monomaniac: he may be sane enough on other subjects, but on that subject he is insane; and I do not think that entomological misers can show any better claim to be considered sane than other misers. The entomologist who collects diligently will soon find that, in spite of all his efforts, some of his insects will be without names, never having been described. How is this to be remedied? He must describe them himself: otherwise, if he name them without describing them, the first name by which such insects are described will upset his manuscript names. In order to describe a species correctly, and to avoid future mistakes, it is necessary to compare it with the species it most closely resembles, and to point out the differences between it and them. The use of a collection is to point out the minute differences between closely allied species; the *abuse* is to collect for the sole purpose of saying "I have fifty more species than you," without making any use of them. It frequently happens, however, that collections of this latter class are of use, though not to the owner: they are like libraries of great extent collected by one who cannot read—of great use if accessible to those who can: if inaccessible, or secluded in a provincial town or quiet country village, they are of little use while the owner lives; but at his death they will probably become the property of somebody whose notions of a collection are rather different. So collect all ye who are collectors, if not for this generation, for the next; but if ye be capable of better things, proceed by all means from collecting to entomologising.—*H. T. Stainton; Mountsfild, Lewisham, January 4, 1850.*

Bees raising an Artificial Queen.—An instance of bees raising an artificial queen came under my observation during the latter part of the summer of 1847. The hive had lost its queen, and appeared exceedingly distressed in consequence; and being one I valued on account of the large produce it afforded me, I removed from a cottager's hive, doomed to the brimstone pit, a small piece of suitable brood, and placed it over the stock hive, in a small bell glass; being thereby enabled to observe all their proceedings with facility. A few hours after giving them the comb, they commenced

building a royal cell; in this instance at the margin of the comb, contrary to their usual custom when raising an artificial queen. A grub was removed from one of the cells, placed in the royal cell, and assiduously nursed for the usual period, about thirteen days from the hatching of the egg. This is now one of my most prosperous hives, and, never having swarmed, this artificial queen is in all probability the present sovereign of the hive. The weather was, at the time of giving them the comb, cold, and other glasses were in consequence deserted by the bees; but in this instance they clustered on the comb, and kept up the necessary temperature for the maturing of the young queen. She emerged from the cell on the 13th of August.—*George Fox; Kingsbridge, 2 mo. 5, 1850.*

Some Remarks on Wild Cats shot in England.—I have at present in my possession a skin of the wild cat, *Felis catus* of Linneus, I believe, which was got in Wales, and is I think very different from the *Felis maniculata*, one of which is now in the course of preservation by Mr. Gornal, of this town, for R. A. D. Gresley, Esq.: it was shot in the park at Auckland Castle, and is a fine large animal, but in contour very unlike the other, having—if I may be allowed the comparison—the appearance of the cheetah as compared with the tiger; for the *Felis catus* appears from the skin to have been a much more powerful animal; the leg very stout, neck thick and head very large, while the tail assumes almost the appearance of a fox brush. The markings of the two animals are also very different, the one shot here being of a uniform gray, with very distinct black markings almost equal to a tiger; while the colour of the other is a rufous gray, with the markings on the side and legs broken and undefined, giving the whole a cloudy mixed appearance; from the muzzle to the eyes a fawn colour; from the eyes, passing between the ears, are six well-defined black lines, which, after passing the ears, merge into four along the neck, but before reaching the shoulder are lost; the mark along the back is often broken, as are also the rings on the tail, except the three near the end, which are well defined; tail end black. The following are the admeasurements of the *Felis catus*, and, as the skin is dry and never has been stuffed, are within its natural size.

	ft.	in.
Length from snout to the insertion of tail	2	8
Length of tail	1	1½
Across the neck	„	11
Across the chest behind fore legs.....	1	3
Across the loins	1	4
Length of fore leg to the middle of the skin	1	3½
Height of hind leg do. do.	1	5
Length of canine teeth	„	0½

The length of *Felis maniculata* (inclusive of tail, which is 1 ft. 3½ in.) is 3 ft. 1 in.; the height 1 ft. 0½ in. I think Charles St. John, Esq., considers them as two distinct species.—*Joseph Duff; Bishop's Auckland, January 6, 1850.*

[I am much puzzled by this communication. May I inquire whether my correspondent considers we have two species of *Felis wild* in Britain? I have never

heard of *Felis maniculata* occurring in England: it is a Nubian species, discovered by Ruppell, and the only connexion of the name with British cats is in the hypothesis suggested by Temminck, that all domestic cats were possibly referable to this new species as the aborigo. This hypothesis, however, is a mere guess originating in the desire to trace domesticated quadrupeds to wild sources.—*Edward Newman.*]

Note on the Roe Deer (*Cervus capreolus*).—In Dorsetshire, Mr. Bell, in his delightful 'History of British Quadrupeds,' p. 409, says "the roebuck is now rarely met with in England." At Milton Abbey, the magnificent seat of the Right Hon. the Earl of Portarlington, we have a herd of somewhat like fifty in our plantations, and are yearly regularly hunted by a pack of hounds kept in the neighbourhood by a gentleman. Some of them are exceedingly tame, while others are quite the reverse: and it is a notorious fact in this county, that if a deer should perchance be found at any distance, even if twenty miles, by the hounds, it makes its way for its protected home, the Milton Park coppices, to which they do considerable damage, particularly in some winters, by browsing the young and tender shoots of the hazel; still in these hilly woods and coppices they find a protection from hounds and guns. They are extremely graceful and active, leaping with the greatest vigour, and to a considerable height: I have seen them leap a wall eight feet high with apparent ease. They bring forth one and sometimes two young: when there are two, it rarely occurs but that there is one of each sex: I remember an instance in which I met with two female fawns. They are generally brought forth in the skirt of the coppice, particularly amongst brambles and long grass, should there be such, and after being carefully attended by the parent shift for themselves; but I can never make out that the offspring of one female attach themselves to each other, as stated by almost all writers on this subject, and I have for the last four years paid some considerable attention to the subject, nor can I prove that they do not; yet it is perfectly true that the buck attaches himself to one female, and protects her from others. They generally pair in November, and the female goes with young five months. In about a week after they are born, the young may be seen by the side of the dam, feeding in the low covers and outskirts of the coppice. They seem to be for ever on the alert, night and day; for in all my rambles I have never met with them at rest. In the dusk of the evening they may be seen bounding over the hedges, to feed on the young wheat, &c.; and in autumn on turnips, both tops and roots. I have seen as many as ten in a field at one time, taking no notice, only every now and then keeping a sharp eye, as if watching my movements. I have frequently sat on a fixed chair in the woods till they have been within ten yards of me, when I have sharply with my foot stamped the ground; in an instant they have bounded off, jumping as much as twenty feet at one bound, uttering their cry of *baa baa* as loud as the bark of a dog, and sometimes louder, till they are fairly out of sight and reach: some of the more bold will—after taking three or four bounds—stand, and turn round and look at the object of its terror with astonishment, when off it goes again, crying *baa baa*. It is a mistaken idea to suppose they cannot be properly tamed: twenty years ago, in Scotland, I have had them as tame as a dog, and they followed me after the same manner; also the young of the red deer. While on this subject, it may not be out of place here to relate the following circumstance. The late General Campbell, of Menzie, in Perthshire, had a red deer, a buck (*Cervus elaphus*, L.), so tame that it was in the habit of following him to church, and frequently up the stairs of the mansion: he was quite at liberty to roam where he pleased, and in frolic gave many people a knock over, till one day, happen-

ing to injure an aged female, he was dispatched soon after to his more natural Highland home. Some of our roe deer are particularly tame, and may frequently be seen feeding in the pleasure-ground around the Abbey.—*J. Mc'Intosh; Milton Abbey, February 6, 1860.*

Note on the Otter (Lutra vulgaris).—I have made a very interesting addition to the Museum, of two young male otters, which were killed on the 19th of January, on the river Bollin, in Cheshire, about ten miles from Manchester. One of the game-keepers of Trafford Trafford, Esq., of Outrington Hall, was in the pursuit of wild fowl, and observed the frequent occurrence of foot-marks of otters in the snow; and after tracing them for about a mile up the banks of the stream, he came upon three lively fellows disporting themselves by fishing: the one in advance of the other two was occupied with a fine eel, which after securing between his teeth he brought to the others, and they all retired to the banquet under the shelter of an overhanging part of the bank. After staying for a short time they reappeared, and commenced again their fishing diversions, which, however, met with a fatal interruption from the gun of the keeper, who killed one instantaneously, and so wounded another that it was captured and killed soon afterwards without any difficulty. On seeing the sad fate of his brothers, the third immediately sped away up the stream at an amazing rate, and so escaped. I have no doubt that they were all of one paternity, as, from their resemblance in size and social habits while fishing, they seemed linked in the affectionate ties pertaining to brotherhood. The two which were killed weighed nearly 10 lbs. each. The river Bollin is a narrow winding stream, of about thirty miles in length, flowing through a nearly level country of new red marl; and its soft banks are so deep and water-worn as to afford very considerable protection to an animal of such amphibious habits. Not many years back the river abounded with otters, and regular otter hunts were of ordinary occurrence; but being most unfortunately regarded as enemies to the finny tribe, they have been most mercilessly destroyed, and are now found but sparingly throughout its course. I have learnt that two were shot in the month of May, 1848; but we may probably be not far distant from the time when it will have totally disappeared from all our inland streams.—*John Plant; Royal Museum, Peel Park, Salford, February 6, 1860.*

A few Remarks on Nomenclature in Natural History.

By the Rev. JAMES SMITH.

BEING favoured by a friend with the publications of the Ray Society, I have felt much interest in their volume which is entitled 'Reports on Zoology,' and which was published in 1847: These Reports have reference to the years 1843 and 1844.* In perusing

* On the most cursory glance at this volume of Reports, one cannot but be struck with the number, the importance, and the critical and philosophical character of German productions in every branch of zoology. In comparison, those of Britain and France are limited; and it may be doubted if, in general, they exhibit the same

that branch of them which embraces Ornithology, and which is drawn up by Professor Wagner of Munich, I have been powerfully impressed by the rational curiosity, the incessant activity and the untiring zeal, which are in operation, almost in every part of the world, with regard to this beautiful portion of the animal kingdom. Numerous and hitherto unseen specimens of birds are, in consequence, submitted every other day to what they were doubtless from the beginning intended to be by their heavenly Maker—the inspection and the study of man, the chief and most intellectual of his creations in the present world. But I cannot refrain from saying that I have, at the same time, been struck with the excessive desire, which would appear to exist, not only to multiply genera and to fabricate names of a startling character to the common and unlearned reader, but also to change and to throw away numbers of those which have been already long in existence. There seems, throughout the whole science of Ornithology, to be but little that can be regarded as fixed and permanent; and a chief occupation of every writer who is more eminent than usual, we might almost be tempted to think, was the overturning of what had been proposed and established on the subject by those who had gone before him: and even had the changes which are so frequently introduced been imperatively called for by the state of Ornithology in the present day, I am unable—although at the risk of exposing my ignorance—to conceal the belief that the very principles upon which these are formed are sometimes unphilosophical, and, in more cases than one, are not a little absurd. On this particular point I have already ventured to make a few remarks, more especially on such names in science as end in *oides* (Zool. 1909). I was not then aware that objections to names of this description had previously appeared in print, and I was, therefore, not a little pleased to find, by a quotation made by Dr. Wagner (p. 61) from the ‘*Philosophia Botanica*,’ that one of the rules laid down by Linneus himself, on the nomenclature to be observed in Botany, is in the following terms: “*Nomina generica in oides desinentia e foro releganda sunt*,”—‘generic names ending in *oides* ought to be put out of court’ (§ 216). It is obvious that if

persevering minute and scientific research. The freedom of disquisition, which in France, but more especially in this country, is allowed on every subject, is understood to be more limited in Germany, and to be exercised there with greater danger from consequences. Has this circumstance any influence in directing the German mind—at once, restless, imaginative and laborious—to the cultivation of some particular branches of knowledge more than to that of others?

such a rule is necessary in Botany, it must at least be equally called for in the kindred science of Zoology; and it is conceived that it may be extended, with the most beneficial results, to species as well as to genera. It is presumed to be the belief of naturalists, with but inconsiderable exceptions, that, in no branch of the kingdom of Nature, has the creation of an additional animal or plant taken place since the moment when our first parents were called into existence; and if this is the case, none of the animals which have been described and arranged by naturalists can, logically speaking, be considered as having in themselves a superiority, either in importance or in time, from the mere circumstance that ages may have elapsed between the discovery by man of the first species belonging to any particular genus and the discovery of another species which may have been added to the same genus only the other day. In reference to man, indeed, they may be looked upon as being of different dates; and those of them which have been most recently brought to light, may be viewed by him as subordinate to those of which he may have long had the knowledge, and with the habits of which he may be familiarly acquainted: but in a philosophical sense this cannot be admitted; and each must be regarded as individually constituting a distinct and independent species from the period when the whole were simultaneously formed and appointed by their Creator to constitute that genus in the system of Nature which combines more characters, possessed in common by them all, than are to be found in any other group throughout the animal kingdom. And it is this very circumstance that would appear to furnish a strong and an abiding objection against all names in Natural History which end in *oides*. One animal ought not to be deprived of a distinct and independent name, and to be characterized as only resembling another animal, merely because the latter has accidentally come to the knowledge of man, and has had its habits investigated at perhaps a much more early period than the former: in the eye of Reason they are both coeval, and independent the one of the other.

In the Reports on Ornithology to which I refer, and which are two in number, we meet with a great many specific names which have their termination in *oides*. A few of these may be enumerated, as, for instance, *Emberiza Cioides*, or the bunting having a resemblance to the Cia bunting (p. 66); *Saxicola Leucoroides*, or the stone-frequenter or chat resembling the white-tail, but not necessarily meaning—if we regard merely the component parts of *leucoroides*—that it is the white-tail *chat*, although it is wished, and doubtless expected, that on the part of the reader that circumstance should be taken as a matter

of course (p. 70); *Falco Rupicoloides*, or the falcon resembling the *rock-frequenting*, but not, strictly speaking, the rock-frequenting falcon more than any other object which may be a frequenter of rocks, the same objection applying here as in the last case (p. 288); *Tinnunculus Cenchroides*, or the kestrel resembling the *Cenchris* kestrel (p. 61); *Pachycephala Lanoides*, or the thick-head resembling the butcher-bird (p. 287); *Dacelo Buccoides*, or the *Dacelo* resembling the *Bucco* (p. 75); *Casarea Tadornoides*, or the *Casarea* resembling the shieldrake (p. 299); *Eurypyga Phalænoides*, or the broad-rump resembling the *Phalæna* (p. 82); *Podargus Phalænoides*, or the white-foot resembling the *Phalæna* (p. 290). 'So far as I am aware, the *Phalæna* is a kind of moth; so that the specific designation of these two birds, the one in the genus *Eurypyga*, the other in the genus *Podargus*, would be comprised in this, that they have each of them a resemblance to a particular moth. But there are two or three other specific names ending in *oides*, which are entitled to our notice in a still more particular degree. In his 'Illustrations of the Zoology of the South of Africa,' Dr. Smith has figured and described a new species of bird, which he entitles *Miraфра Africana*, and another, also, which he names *Miraфра Africanoides* (p. 66). Now both these birds are found in Africa, and, so far as is yet known, they are to be found there only; and, in plain language, it is conceived that the meaning of their names must be, literally and respectively, 'the *Miraфра* belonging to Africa,' and 'the *Miraфра* belonging to Africa, and resembling the *Miraфра* belonging to Africa.' It is no great wonder that after the second of these names Dr. Wagner places a note of admiration. In the 'Revue Zoologique,' Lafresnaye has given to a new species of woodpecker, or tree hammerer, the name of *Colaptes Mexicanoides*. The roots of *Mexicanoides* are evidently, I should imagine, *Mexicanus*, 'of Mexico,' and *eidos*, 'resemblance;' and if the name of this bird is to be taken by itself, and interpreted in its literal and obvious meaning, it presents to us, so far as I can see, neither more nor less than the rather unlooked for intelligence that the bird in question is a *Colaptes*, or tree hammerer, 'having a resemblance to the country of Mexico.' In this case, also, we find appended to the name the Professor's mark of astonishment (p. 292). Lafresnaye, moreover, has bestowed upon a new species belonging to a different genus the designation of *Saltator magnoides*, which, viewed by itself and translated according to the meaning of its component parts, would appear to be capable of no signification save that of 'the dancer,' or 'vaulter, resembling great.' This name is likewise followed by a note of asto-

nishment on the part of Dr. Wagner (p. 285). As a crowning specimen, we have from one of the most zealous, and in pictorial talent one of the most eminent of modern ornithologists, the designation—applied to an Australian wader—of *Glottis Glottoides* (Gould's 'Birds of Australia,' No. 16; p. 298 of Reports). I am unable to see what meaning can, strictly speaking, be conveyed by this name, except it be that the bird to which it is given has to the selfsame bird a resemblance: and that it has such a resemblance, the most critical spectator into whose presence it comes will scarcely, it is imagined, be inclined to have any doubt. It is somewhat remarkable that to this name Dr. Wagner has appended no mark of astonishment.

It is not unnatural to ask, whether common sense should not be kept in view in the formation of scientific nomenclature, as well as in any other matter? But on the supposition that it should, what are we to make of such a name, for example, as *Myiobius diadema*? The roots of the generic portion of this name appear to be *muia*, 'a fly,' and *bios*, 'life,' or 'the means of existence;' and, if this is the case, the translation is 'the liver on flies a crown,' whereas the meaning intended is evidently 'the crowned liver on flies;' and on this account, and in order to give anything like sense, the adjective *diadematus* must be substituted for the substantive *diadema* (p. 287). Again, what is the meaning of *Zosterops dorsalis*? *Dorsalis* is apparently a barbarous adjective formed from *dorsum*, 'the back,' and the literal translation of this name would accordingly be 'the girdled-face of, or with, the back.' And to an individual to whom it was given such a translation might very naturally suggest the question, was there ever a bird discovered without a back? If, as is most likely, it was wished in this case to show, by the specific designation, that the bird has something peculiar about its back, another word should evidently have been compounded for this purpose along with *dorsalis* (p. 70). If there is any force in these remarks, they are applicable—in a similar manner and to the same extent—to *Fulica femoralis*, or 'the coot with the thigh;' *Ardea gutturalis*, or 'the heron with the throat;' and to *Cedricnemus superciliaris*, or 'the swollen knee with the eyebrow' (p. 82). It is perhaps worth while to pause at this last name, *Cedricnemus superciliaris*. *Cedricnemus*, as is well known, was given by Linneus, as its specific name, to a bird which he arranged in his genus *Otis* (Turton's translation of the 'Systema Naturæ,' 1806); and, by more recent ornithologists, this name has been erected into a distinct genus by itself. The species of which the genus is composed are remarkable for a peculiar appearance about the knee, and this did

not escape the eye of the illustrious Swede when he was forming a name for the only species which was at that time known. Instead, however, of thinking it unnecessary to term it any other thing than merely *Otis cnemus*, or 'the bustard with the knee,' he compounded another word along with *kneme*, to show that the peculiarity in the knee was 'a swelling,' the Greek word for which is *oidos*, and hence the whole name *Otis Œdicnemus*, or 'the bustard with the thick, or swollen, knee.' And this was proceeding upon a principle much more philosophical than is to be found in such a name as *Œdicnemus superciliaris*, where there is no word in composition to show in what the peculiarity about the eyebrow consists. We meet, also, with a bird which is called *Drymoica aberrans*, which, when translated, must mean 'the deviating dweller in oak forests' (p. 70): but from what, it may be asked, does this bird deviate? To such a question the specific name does not, strictly speaking, supply any answer; but it may be presumed that it is a deviation in structure and habits from the other species of that genus of birds with which it has been associated. Let it be remembered, however, that such an association is caused by the artificial arrangement of writers on Ornithology, by whom the bird has perhaps been forced unnaturally into a position which by its Creator it was never intended to occupy. Its structure, we need not doubt, is admirably adapted to those habits which he designed it to exercise; and to call it aberrant because it adheres to these habits, and to them only, is surely neither natural nor philosophical. Once more: Count Von Muhle proposes to assign the scientific name of *Numenius Syngenicus* (p. 83)* to a bird which he is disposed to consider as a new species of curlew. The specific designation in this case is, I presume, the Greek adjective *suggenikos*, half in a Greek half in a Latin form. In Scapula's *Lexicon* (fol. p. 293; Amsterdam, 1652) it is explained as "generis propinquitate conjunctus—cognatus," that is, 'one connected by affinity of race—a blood relation.' The meaning, therefore, of *Numenius Syngenicus*, is neither more nor less

* In the same page Dr. Wagner says that Blyth (*Annals of Nat. Hist.* xii. 74) is inclined to place *Glareola* among the *Caprimulginae*. Not having seen Mr. Blyth's paper, I am not aware if, in confirmation of his opinion, he has made reference to the egg of the *Glareola torquata*. This egg is beautifully delineated—as everything is which comes from his pencil—by Mr. Hewitson, on Plate 160 of his '*British Oology*' (Supplement; 1842). It is altogether unlike the egg of any of the *Charadriadæ*, and has a very close resemblance to that of our own goatsucker (*Caprimulgus Europæus*), both in its peculiar outline and in the marble-like blotches and spots with which it is marked.

than this,—‘the curlew which is connected by affinity to its race,’ or more plainly perhaps, ‘the curlew which by blood is a relation of curlews.’ But surely this is a most unphilosophical as well as a very strange designation; inasmuch as it is the veriest truism which could be thought of, to say that every species of curlew is individually connected, by affinity of race, with all the other species, however many, of which the genus *Numenius* is made up.*

If the doctrine is regarded as sound, that the name even of a *species* should not involve a reference to another species, it will, in all probability, be conceded that a similar doctrine is applicable to the names of *genera* in a still more emphatic and powerful degree. It is, indeed, as we have already seen, against generic names ending in *oides* that the unqualified and summary denunciation of Linneus is pronounced.

- He will not give them so much as a hearing. The first name of this description which calls for notice, in the Reports in question, is perhaps *Polyboroides typicus* (p. 61): and, if the meaning of this name is to be given in English, it must be by some such paraphrase as this,—‘the type of those birds which have a resemblance to the bird the excessive glutton.’ It would seem to be thus implied, that these birds have in themselves no appearances sufficiently distinctive to form a genus, and that they must be referred to a genus already in existence, while, at the same time, they do not harmonize with that genus

* In arranging the various species, so far as they have yet been discovered, of the gigantic genus of New Zealand birds which has been named *Dinornis*, Professor Owen (p. 296) has instituted *Dinornis Struthioides*, *Dromæoides* and *Didiformis*, or the awful bird resembling the ostrich, that resembling the emeu, and that of the form of the dodo. And if, in any case, a specific name ending in *oides* is admissible in the nomenclature of science, it would appear to be so in perhaps a case like the present, where there is too much reason to fear that—however lately in existence—the *Dinornis* is now finally extinct. And, since we cannot any longer look upon these feathered Goliaths themselves, it undoubtedly assists us in picturing their appearance to our imagination, when we are told that two of the species resembled respectively the ostrich and the emeu. It may, however, admit of a doubt, whether the specific name *Didiformis* is equally unobjectionable with those just mentioned along with it, inasmuch as it refers us to a form which has itself become extinct, and of which there is, in all probability, but one portrait only in existence which was actually taken from the life, and that too by an artist of celebrity; and which may, therefore, be looked upon as accurate in every respect: this portrait was for a time lost sight of, and was again brought to light by Professor Owen himself, at the Hague, in 1838 (*Penny Cyclopædia*, xxiii. 143). The researches and discoveries of Professor Owen in regard to the bones of the extinct *Dinornis*, and to many other subjects of a kindred nature, show that upon him has fallen the mantle of Cuvier: of that great comparative anatomist he would indeed appear to be the worthy successor.

in such a manner and to such an extent as to be properly included in the species of which it is strictly composed. They cannot be described by characters peculiar to themselves, but by those in their structure and plumage in which they have a resemblance to others. The character of the genus *Polyboroides* is, that it resembles the genus *Polyborus*: the character of this particular species *typicus* is, that it furnishes in itself the rule by which are to be determined those other birds which may, more or less, resemble the genus *Polyborus*. Of what advantage, in the advancement of knowledge, is such a genus as *Polyboroides* likely to be productive? The bird of which we are speaking, *Polyboroides typicus*, occurs in Africa: the bird which it appears it resembles, to so great a degree that the most appropriate name for the genus to which it belongs is the 'Polyborus resembler,' is a native of America. If, in future ages, the inhabitants of Africa shall turn their attention, as is to be hoped, to the study of the works of Nature, will it greatly assist their researches and render their information more clear and precise to be told that the most remarkable thing which science can say to them, about a bird which may be daily before their eyes, is its uncommon resemblance to a certain other bird in America, a quarter of the world in which they have never been, and the natural productions of which they have had no opportunity of seeing? As names of genera, it is also conceived that the gravest objections may be entertained against *Todirostrum*, or the todybill (p. 68); *Struthidea*, or the ostrich form, from *struthion*, an 'ostrich,' and *idea*, 'form' or 'appearance' (p. 63); *Certhidea*, or the creeper form (p. 285); *Geocichla*, or the ground thrush (p. 69); *Hydrochelidon*, or the water swallow (p. 83); and *Ornismya*, or the bird-fly, for the name of which genus recourse has been had to two distinct and widely-separated divisions of the animal kingdom. It is presumed that this may be the reason why Dr. Wagner has placed after it a mark of astonishment (p. 289). Of the same objectionable character would appear to be the genus *Ramphocinclus*, or the bill ouzel (p. 71). This unfortunate word is, moreover, made to do service as the name of another and a distinct genus; and this is effected by a transposition of the two words of which it is compounded. It then appears as *Cincloramphus*, or the ouzel bill. And of the species of which the genus is made up, one is denominated *Cincloramphus cantatoris*, the only translation of which must—so far as I can see—be 'the ouzel bill of the singer.' Such a name, however, is so generally absurd, that *cantatoris* is possibly a misprint for some other word (p. 70). Of another genus the name is *Megaloperdix*, or the great partridge: and with re-

gard to such a genus, is it not natural to ask, if this bird is a partridge at all why is it not arranged among the partridges, however great may be its relative size? And if it is not a partridge, could it not have been possible to give to the new genus, which it required, a distinct and independent name, altogether unconnected with any generic name already in existence? (p. 78). The same questions may be put in reference to the genus *Sternula* (p. 83), which it is presumed is a diminutive of *Sterna*, and means, therefore, the little or lesser tern. In this way it has the additional disadvantage of coming in contact with the vernacular name of *Sterna minor*. Of a strange nature, at least so far as I can see, is the generic name *Holocnemis* (p. 286): of this the component parts are, I presume, *holos*, 'whole' or 'entire,' and *kneme*, the 'leg' or 'shank.' That a bird may have its leg of a thickness or length greatly disproportioned to its other members, I can easily conceive; but how it can be said to be wholly or entirely a leg is above my comprehension. If it is replied that this is not the meaning of *Holocnemis*, and that it merely points out the circumstance that the various species of this genus have their legs whole or entire; will it, in such a case, be maintained that it is a distinction in Nature that certain birds have their legs entire, while others have them impaired or curtailed? or will the leg of any bird be represented as imperfect, when it is found thoroughly adapted to the purposes for which it was intended by its Creator? Objections of a similar character may, it is conceived, be brought forward against the genus *Hemipodius* (p. 294), which is doubtless compounded of the words *hemisus*, 'the half,' and *pous*, 'a foot.' It is surely unphilosophical to say that Nature has given only 'a half foot' to any of her individual productions; and it may be safely affirmed that the foot of the birds composing the genus *Hemipodius* is to them a foot as complete, and as perfect for their purpose, as is the most amply developed foot which may be found among the kindred genera from which they have been separated. Upon a principle of the same nature, the word *Notherodius* (p. 297) is not unobjectionable as the name of a genus: its roots are *nothos*, a 'bastard' or 'spurious,' and *erodios*, 'a heron.' But, in the arrangement of Nature and in the eye of reason, the bird here termed a spurious heron is as much entitled to a distinct and independent station as is the heron or any other; and, by the same kind of reasoning, the heron might be said to be itself spurious, because it does not in all points resemble the bird of which we are speaking. *Smicrornis* (p. 71) would also appear to be a most vague and indefinite name for a genus, if, as is supposed, it is composed of *smikros*, the Attic word

for 'small,' and *ornis*, 'a bird.' Are the birds constituting this genus smaller, for example, than those of which are made up the different genera of the humming birds? Lastly, is it captious to say that such generic names as *Merganetta* (p. 299) would better be avoided? *Merganetta* means, I presume, the 'goosander duck,' *netta* being the Athenian name for the Greek word *nessa*, 'a duck.' But if the bird, of which it is said this genus is at present composed, is neither a goosander nor a duck, it is surely not half of the one and half of the other; and if, in ornithological science, it was to be constituted a distinct genus by itself, as it would seem to have been in Nature from its creation, why did it not receive on the occasion a name independent of others, and not including the names of two genera already established?

Dr. Wagner, whose Reports on Ornithology have given rise to the foregoing remarks, takes occasion, when complaining of the needless separation of the genus *Guiraca* from *Coccothraustes*, to say, "If this confusion in the manufacture of genera continues, we shall soon have as many genera as species," (p. 65). But highly inconvenient, and, except when necessary, greatly to be deprecated as is such a proceeding, even a very considerable multiplication of the genera already in existence, under new and distinct names, seems preferable to the combination and modification of those names which are at present made use of in established genera and species. It will, in all probability, be found that, in the best and most unexceptionable nomenclature that could be devised, the immense array of names and the learned dress in which they are shrouded will be formidable and continued obstacles to a numerous class of individuals, who would otherwise advance in science with much more ease and much more pleasure. It need not be doubted that not a few, who have not had the benefit of what is called a learned education, have been deterred, in consequence, from entering with ardour and hope on the delightful and the ennobling study of Natural History. Scientific nomenclature is, however, indispensable; and if it has its evils, these are very greatly overbalanced by its advantages. Still it will scarcely be denied that such a nomenclature should be of the simplest and most intelligible construction; that it should, in itself, convey as much knowledge as possible in regard to the objects to which it is applied; and that every means should be employed to soften and to explain it to the student, who is either altogether ignorant of the learned languages, or whose knowledge in this respect is not sufficiently extensive for the decomposition of the involved and learned names which meet him in every

direction. With this view, it would be of no mean importance, not only to the unlearned, but even to those who, although acquainted with Greek and Latin, are nevertheless not unfrequently unable to get to the roots of those extraordinary combinations which they have to encounter in the nomenclature of science, if it were expected and required from every writer who proposes a new genus, or who first gives a name to a new species, that he should at the time state fully and clearly the meaning of the word employed, point out and explain its component parts if it has any, and intimate the reasons which have led to its adoption. I have but very few acquaintances who have paid attention to Natural History; but among these, few as they are, there has been a general complaint of the difficulties arising from the multiplicity and the complexity of scientific names, and from the changes to which those names are almost continually being subjected.*

I have no acquaintance with the birds and the names now taken notice of, except from the publication which has been mentioned. On this account, as well as from my own defective knowledge on the subject in general, it is more than likely that many of the foregoing remarks are founded on ignorance and misapprehension: they have, however, occurred to my mind naturally, and in some instances strongly, while looking over Dr. Wagner's Reports; and it is possible that some of them may have presented themselves to others who are placed—with respect to Natural History and to the consultation of new and expensive publications—in the same isolated circumstances as I am myself. With this view, I now humbly offer them to the pages of the 'Zoologist.'

JAMES SMITH.

Manse of Monquhitter by Turriff, Aberdeenshire,
November 30, 1849.

* On this particular point may be quoted the following sentence from Dr. Mantell: "It was my intention to have given figures of all the genera into which the numerous fossil species have been divided by modern observers; but I found the attempt hopeless, from the changes in nomenclature and arrangement which are constantly taking place." ('Medals of Creation,' l. 343.)

*Description of Lanius Excubitorides, a new British Shrike; and
Correction of an Error respecting Lanius borealis.* By R. F.
TOMES, Esq.

SINCE my communication to the 'Zoologist' on the occurrence of the American shrike in Warwickshire (Zool. 2650), an opportunity has occurred of comparing the specimen described with numerous descriptions and specimens, and the result is a full conviction that it must be referred to the species described and figured by Mr. Swainson, in the 'Fauna Boreali-Americana,' under the name of *Lanius Excubitorides*.



Lanius Excubitorides.

A partial re-description, or comparison with our *L. Excubitor*, appears necessary. In the first place, then, it has been stated that it may at once be recognized by having *one* spot of white on the closed wing. This is certainly necessary to determine the species, but it is not all

that is necessary : there must be no *concealed* spot there, as appears in many specimens of the English species. All the specimens of the latter have in fact *two* spots of white on the wing, that on the secondaries occupying in some specimens a very small space at their base ; and these individuals have also a small proportion of white on the tail. Other specimens have the white on the secondaries a little more extended, so as to show a very small spot of white on the closed wing, and these have a corresponding greater proportion of white on the outer tail-feathers ; and so we proceed until we have the full-sized patches on both primaries and secondaries, and the outer tail-feather entirely white. This is probably the adult condition of the bird. Now my bird is without even the slightest trace of white at the base of the secondary quills ; and from the pure gray of the upper parts, the pure black of the wings and tail, the well-defined white tips of the secondary and tertial quills, and the exceedingly faint indications of crescentic gray markings on the breast, it may fairly be supposed that it is an old individual. Dissection proved it to be a male. A specimen which died lately at the gardens of the Zoological Society, received alive from America, resembles the Warwickshire bird, except that the whole of the colours are less pure, and it is thickly marked with gray bars and crescents on all the under parts : when dissected, this bird was found to be a female. I may add, that it is the full opinion of Mr. Yarrell that the specimen I have described is identical with Swainson's *Lanius Excubitorides* ; and I have to thank that gentleman for the great trouble he has taken in the examination of various specimens and descriptions of shrikes for my satisfaction. Mr. George Gray has offered me every opportunity of examining specimens in the British Museum.

In the way of synonymy I can only refer to the 'Fauna Boreali-Americana' of Richardson and Swainson with certainty ; but believe that it is the same as the *Lanius Ludovicianus* of Audubon, as *Lanius Excubitorides* is included in the synonyms of that species in the 'Synopsis of the Birds of North America.'

Lanius Excubitorides, Swains. & Rich. *F. Bor. Amer.* v. 2, p. 115, pl. 34.

Lanius Ludovicianus (Linn.), Aud. *Synop. of Birds of Amer.* p. 158.

R. F. TOMES.

Welford, Stratford-on-Avon,
January 19, 1850.

The Birds of Oxfordshire and its Neighbourhood.
By the Reverends ANDREW and HENRY MATTHEWS.

(Concluded from page 2626).

Additional Notes.

Greenfinch (*Coccothraustes chloris*). A beautiful and very extraordinary variety of this species was killed near Weston, in January, 1849. At first sight it much resembles a canary, and from the regularity of its markings has not at all the appearance of a casual variety. The following is a description of its plumage in detail: bill and legs of a pale flesh-colour; crown of the head white; cheeks and neck mottled with cinnamon-brown; back yellow, marked down the middle and on the scapulars with cinnamon-brown; rump bright yellow, marked with dusky green towards the sides; upper tail-coverts yellow, the two longest tipped with brown; tail bright yellow, with the two middle and the two outermost feathers on each side tipped with black; greater and lesser wing-coverts yellow, widely and regularly tipped with cinnamon; primaries with the outer web bright yellow, inner web white, tipped with black; secondaries and tertials pale yellow, more or less marked with brown and black; under-parts yellow, shaded with cinnamon-brown.

Common Sandpiper (*Totanus hypoleucos*). On the 1st of July, 1849, we found a pair of this species on the margin of the lake in Kirtlington Park. From their unwillingness to quit the spot, we were led to suppose that their nest was not far distant, though we could not at the time discover it. On the following day we left home for nearly a month, and when we next visited the spot the sandpipers were not there. The fact, however, of having seen them at that period of the year, materially corroborates our opinion, expressed in a former note, that this bird occasionally breeds in the neighbourhood.

Wood Lark (*Alauda arborea*). From observations made during the past season, we have little doubt that this species resides throughout the year in certain spots on the Chiltern range, near the borders of this county. These localities are but few in number, and the bird itself very sparingly distributed over them.

Pink-footed Goose (*Anser phænicopus*). Our note upon the *Anser ferus* seems more properly to refer to the present species, which we have every reason to believe is the most abundant of the two.

Arrival and Departure of the Migratory Birds in Oxfordshire.

The observations from which the following table of the arrival and departure of our migratory birds has been drawn up, were made during the last ten years for our own amusement, without any view to publication, and perhaps with less accuracy than we could now wish. In most of these years the periods of arrival have been regularly noticed, and that portion of the list may be regarded as tolerably correct; but from the much greater difficulty of obtaining an accurate observation of the departure of many of our visitors, the dates below are assigned to some few with considerable diffidence, though we believe them to be not far wide of the truth.

In a general table of this kind, comprehending a period of ten years, many intermediate and unimportant dates must of course be omitted; and on the whole it appears more useful to mention the week, rather than the day, in which the species was seen for the first or last time. In dividing a month according to this plan, the first week must be understood to finish on the seventh day, the second on the fourteenth, and so on, and the two or three last days of each month must be included in what is termed the fourth week. Thus the *earliest* appearance of the chiff-chaff, taking this species for an example, happened on the 25th of March, 1846, and the *latest*, of which we have any note, on the 10th of April, 1840: according to our rule, then, the arrival of the chiff-chaff has always occurred on or between the fourth week in March and the second week in April. And in the same way with regard to its departure; in 1845 the chiff-chaff was seen for the last time on the 15th of September, while in 1848 it remained with us until the 18th of October: all other notices of its disappearance happening on days intermediate between these two, the time of its departure may therefore, in a general way, be said to range from the third week in September to the third week in the following month.

It has sometimes been a matter of surprise to us that the season should have so little perceptible effect in hastening or retarding the appearance of our earlier visitors. Often after a long succession of fine warm days, at the end of February and beginning of March, have we looked and listened in vain for a chiff-chaff; while in another year, towards the end of the latter month, when the ground has been hard frozen and covered with snow (as in the spring of 1837), we have been agreeably surprised by the appearance of our little friend, looking perhaps somewhat cold and cheerless, but still hopping from twig to

twig in his own lively and inquisitive manner. It is strange that the beneficent rules laid down for the reproduction of plants and insects should not more sensibly influence these tender animals; but in this part of their economy they seem governed by a law little subject to alteration, and when the time of year returns, be it milder or colder, with it they return also.

With regard to the species which arrive at a more advanced part of the season, the regularity of their appearance—though even more exact than that of the first comers—ceases to create the same surprise: some of these last we have noticed for the first time on the same day in many successive years, and few vary to any great extent.

The species are arranged below according to the order in which they most commonly arrive.

	<i>Arrival.</i>	<i>Departure.</i>
Chiff-chaff	iv March to ii April.	iii September to iii October.
Swallow	iv March to iv April.	iii October to i November.
Willow warbler	iv March to iii April.	ii September to iv Septemb.
Wryneck	iv March to iii April.	ii September to i October.
Blackcap	i April to iii April.	ii September to iii Septemb.
Lesser whitethroat	i April to iv April.	i September to ii September.
Sedge warbler	i April to iv April.	i September to iii Septemb.
Cuckoo.....	ii April to iv April.	ii July to iv September.
Martin	iii April to iv April.	iii October to ii November.
Nightingale	iii April to iv April.	ii September to ii Novemb.
Whitethroat.....	iii April to iv April.	i September to iii Septemb.
Redstart	iii April to iii May.	ii September to iii Septemb.
Sand martin	iii April to iv April.	ii September to iv Septemb.
Whinchat	iii April to ii May.	iv August to i September.
Pied flycatcher	iv April.	
Yellow wagtail	iv April to ii May.	ii September to iii Septemb.
Grasshopper warbler	iv April to iii May.	iv August to i September.
Spotted flycatcher	iv April to iii May.	ii September to iii Septemb.
Swift	iv April to iii May.	iii August to iv August.
Hobby	iv April to iii May.	ii September to iii Septemb.
Red-backed shrike	i May to ii May.	i September to ii September.
Nightjar	i May to ii May.	ii September to iii October.
Wood warbler.....	ii May.	
Garden warbler	ii May to iii May.	ii September to iv Septemb.
Turtle dove	ii May to iv May.	ii September to i October.
Great plover	ii May to iv May.	i September to iii Septemb.
Reed warbler	iii May to iv May.	i September to ii September.
Tree pipit.....	iii May to iv May.	i October to iii October.
Landrail	iii May to iv May.	ii October to iii October.
Quail	iv May to i June.	ii September to iii Septemb.

Arrival.

Departure.

Snipe	11 August to 1 October.	111 April to 14 April.
Woodcock	11 September to 14 October.	111 March to 14 March.
Redwing	1 October to 14 October.	14 March to 1 April.
Jack snipe	1 October to 14 October.	14 April to 1 May.
Fieldfare	11 October to 111 October.	14 April to 1 May.
Gray wagtail	1 October to 1 November.	11 March to 111 March.
Teal	111 October to 11 November.	11 March to 111 March.
Merlin	14 October to 111 November.	11 March to 1 April.
Golden plover	14 October to 14 November.	111 March to 14 March.
Mountain finch	14 November to 111 Decemb.	1 March to 111 March.
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Ring ouzel	111 April.	14 September to 11 October.
Wheatear	111 April to 1 May.	11 September to 14 Septemb.
Dotterel	14 April to 11 May.	1 October to 111 October.
Common sandpiper	14 April to 11 May.	11 August to 111 August.

The list of the birds of Oxfordshire and its neighbourhood, though doubtless yet imperfect, has nevertheless far exceeded the estimate we had previously formed of its extent. Of the 346 or 347 reputed British species, 232, or more than two-thirds, have been enumerated in the foregoing pages as killed in this central part of the kingdom. A great majority of this number are introduced upon our own authority: of the remainder we have used every endeavour to sift the authenticity of the facts reported, and, although we might naturally have felt inclined to increase the length of our catalogue, it has been our wish throughout that no species should appear in it whose claim to such position might seem in any way doubtful.

In the nomenclature we have been chiefly guided by Yarrell's 'British Birds.' With regard to the Latin *specific* names, as it is not always easy to be understood which name is indicated in that work as the proper one to use, we have adopted such as appeared to have either the consent of the majority of naturalists or the sanction of priority, or both, in their favour.

We cannot allow ourselves to hope that our remarks are free from error, but can truly affirm that no pains have been spared in their investigation; and must now leave the list, as it is, in the hands of your readers.

A. & H. MATTHEWS.

ERRATA.—Page 2597, line 17 from bottom, for Mr. Forrey read Mr. Forrest.
Page 2599, line 2 from top, for Gallinaces read Gallinacées.

Note on the Kingfisher.—Whilst sitting this morning at breakfast, our dining-room windows facing the river, the distance from which is only a few yards, I saw something fall with great speed into the water, from a considerable height, but so rapidly that I could not distinguish form or colour. It struck me at the moment that it must be a kingfisher; but as it did not appear for some seconds, I thought I was mistaken: such however it proved to be, as in about the space of three or four seconds up he came, with a fish about three inches long in his beak, and returned with it to the tree from which he had watched his prey: he remained there for a short time, and then flew away to a bridge a few yards distant, where I watched him with my glass, and saw him devour his breakfast: he took the fish by the tail, and struck it some score of times against the railing until he had killed it: after several unsuccessful attempts, he succeeded in swallowing the mouthful, remaining on the bridge some minutes after he had finished his meal. This is not the first time I have seen it, for it has occurred repeatedly during my residence here of four or five winters, at about the same time and spot, and probably it is the same individual. I do not know that I should have troubled you with these lines, had I not happened, half an hour after having observed it, to read a similar account in the 'Zoologist' (Zool. 2603), in which it is remarked that in some places the kingfisher is said to quit our pools and waters in the winter. I have, however, always observed them more frequently in the autumn and winter than in the summer, during which season I have hardly ever seen them, although they breed regularly in my grounds.—S. Gurney, Jun.; *Carshalton, January, 1850.*

Reply to Mr. Gurney's Inquiry respecting the Gray-legged Goose.—We have delayed to answer Mr. Gurney's inquiry (Zool. 2622) respecting the wild geese found in this neighbourhood, hoping to have done so with greater certainty from the examination of recent specimens during the winter: in this, however, we have unfortunately been disappointed, for, although the season has been upon the whole favourable to their appearance, as yet but few flocks have been seen, and no specimens to our knowledge obtained. With the exception of the common duck, all wild fowl have been unusually scarce in this part of the kingdom: in our excursions we have only met with one flock of teal, generally the most abundant of its family; and on the same ground where a twelvemonth since we might flush from 100 to 300 snipes, it has been a difficult matter to find a single bird. Whether this scarcity of wild fowl has been general throughout the kingdom we have not heard: in this neighbourhood it must be attributable to the long continuance of dry weather in the early part of the autumn, by which the standing water was completely dried up, and the springs themselves almost reduced to the same condition. With reference to the subject of Mr. Gurney's inquiry, we must confess that our note upon the *Anser ferus* was written without that consideration which should have been bestowed upon it. Throughout the whole of our somewhat long list, the remarks were made either from our own observations or from the communications of friends upon whose veracity we could rely, and, except in the matter of nomenclature alone, we derived no assistance from, nor even made reference to, the published works of any other ornithologist; so that although errors, as in the case before us, may here and there be found, our remarks can at least claim the merit of originality. We never felt sufficiently interested in the genus *Anser* to investigate its species with much care. In our examination of preserved specimens reported to belong to *A. Segetum*, the "diagnosis" kindly alluded to by Mr. Gurney had not been overlooked, yet, strange as it may appear, all the living or unexamined birds were inconsiderately assigned to its congener, *A. ferus*, or, as it has been falsely

termed, the *common* wild goose; and hence arose the error, for such it doubtless is, which Mr. Gurney has pointed out. In future we shall pay attention to this genus, and, as soon as we have obtained a more thorough acquaintance with the relative rarity of its species, will again trouble you with some observations on the subject.—*A. & H. Matthews; Weston, January 22, 1850.*

Occurrence of the Hawk's-bill Turtle (Chelonia imbricata) in the Parret, Bridgwater.

The notice by Mr. Rudd of the occurrence of the hawk's-bill turtle off the Yorkshire coast, last year (Zool. 2708), induces me to send you notice of one taken alive in the river Parret, many years ago. I find in my memoranda that an apparently healthy hawk's-bill turtle was brought to me on the 27th of May, 1827, which was taken a few days before, floating up the river with the tide, above Bridgwater. I mentioned this circumstance in a note to my departed friend, Mr. Anstice, whose letters to the late Col. Montagu, on the black stork, appear in the last number of the 'Zoologist,' and the following reply will, I am sure, interest many readers of this useful and interesting periodical. "I know the circumstance of a turtle being caught in our river, but of what species I do not know. If, as you say, it was a hawk's-bill, it is not very probable, I think, that it had been assisted hither by one of our trading vessels from abroad, as its flesh is not sufficiently esteemed to induce any one to bring it to the market of the gourmands, and its shell may be brought over in a far less troublesome and expensive manner. I should think they may sometimes accompany the inter-tropical seed-vessels and shell-fish, that are yearly brought to our channel, and to the coasts of Scotland and Ireland, by the gulf stream. I have seen the species in question on the coast of Portugal, and once, I remember, in a winter month and gale of wind; and why they should not, therefore, take an excursion across the Bay of Biscay occasionally in summer time I do not know." The following extract from Lyell's 'Geology,' vol. ii. p. 104, is very appropriate here: "Turtles migrate in large droves from one part of the ocean to another, during the ovipositing season. Dr. Fleming mentions that an individual of the hawk's-bill turtle, so common in the American seas, has been taken on one of the West Zetland islands, and, according to Sibbald, the same animal came into Orkney: another was taken in 1774, in the Severn, according to Turton. * * These animals, of more southern seas, can only be considered as stragglers, attracted to our shores, during uncommonly warm seasons, by an abundant supply of food, or driven by storms into high latitudes."—*Wm. Baker; Bridgwater, February, 1850.*

Land and Fresh-water Mollusca found in the Neighbourhood of Norwich.

By W. K. BRIDGMAN, Esq.

In the list of species occurring in the eastern counties, Essex, Norfolk and Suffolk, given in the table of Gray's edition of Turton's Manual, from the lists of Sheppard, Pages and Bloxam, seventy-two species are recorded. Of these I have found sixty in Norfolk, with but one or two exceptions in the immediate vicinity of this city, and

also nineteen others not included in the above list, making together a total of seventy-nine: twelve of the former still remain either undetected here or confined to other eastern localities. *Vertigo palustris* and *Pisidium Henslowianum* have been found by Mr. S. P. Woodward; but not having been able to procure them now, I have thought it best to record such only as have occurred within the last three or four years. A single specimen of *Aplexus Hypnorum* I have also seen marked "Lakenham;" but as this was doubtful, it too has been excluded: the only place from whence I have obtained it is at Wisbech, in Cambridgeshire, and there it occurred in abundance.

I have given the localities and habitats with the hope of inducing others to examine similar situations, as I feel persuaded that if carefully sought for most of the species will be found to be pretty generally distributed; and as this highly interesting branch of Natural History has comparatively but few votaries, it is far from improbable that more new species still remain to reward the assiduous collector. The readiest way to obtain the more minute species inhabiting the land, is to provide a few small linen bags and a sheet of paper (nothing better than an old newspaper), and, in dry weather, to pull up the moss, &c., and shake out the sand and earth from its roots on to the paper: this may then be put into one of the bags, together with a slip of paper noting the spot from whence it was taken, and, being carefully tied up, may be carried home and examined at leisure. In this manner I have obtained some—as *Vertigo* and *Helix pygmæa*, *Helix crystallina* and *aculeata*, *Acme fusca*, and several others—which I have never met with in any other way; and being compelled by my professional avocation to limit the extent of my rambles to within a short distance of "home," I have, in consequence, been led to examine more narrowly the few favorable localities within my reach, which has convinced me that a small field for operation, carefully and repeatedly worked, is infinitely better than a larger district only visited in portions successively.

Neritina fluviatilis. Abundant on the submerged leaves of the *Nuphar lutea*, in the river at Heigham.

Paludina vivipara. Plentiful in the river and ditches adjoining.

Paludina Achatina. Common in the river below the city.

Bithinia tentaculata. Very common.

Bithinia ventricosa. Sparingly with the *Neritina*.

Valvata piscinalis. In ditches, at the roots of aquatic plants.

Valvata cristata. Occasionally with the above.

Arion ater. Common; a chocolate-coloured variety common in the Heigham marshes.

Arion hortensis. Occasionally met with.

Limax maximus. Frequent under stones.

Limax flavus. Gardens and cellars.

Limax agrestis. Common everywhere.

Vitrina pellucida. Among damp leaves under hedges, and in almost every wood.

Testacellus Haliotoides. In Messrs. Mackie's nursery-gardens: they appear to be thoroughly naturalized, and are found far away from the buildings. Mr. Arthur Mackie informed me that as many as thirty have been taken in one morning. Upwards of two dozen have been sent to me at one time.

Helix aspersa. "Too common everywhere."

Helix hortensis. Common in hedges.

Helix hybrida. Twenty specimens or more from a hedge near New Catton Church, in the autumn of 1847.

Helix nemoralis. Abundant.

Helix arbustorum. By ditch sides, common; the white variety not infrequent.

Helix Lapidica. I insert this on the strength of several shells having been found near Bramerton: these, although empty, had to all appearance not been long untenanted. I have no doubt that a closer examination of the woods in that neighbourhood will afford living specimens, especially as it is found in the adjoining county of Suffolk.

Helix pulchella. Among sand and earth at the roots of grass and moss, common.

Helix costata of Müller, or *crenella* of Brown. Equally common with the preceding, and both generally found together. There appears to be no doubt of these being the same species, the folds of the periostraca in the one case being rubbed off, the remains of which may often be detected in the sutures of the smooth shell seen under a microscope.

Helix cantiana. Abundant in many localities among nettles.

Helix fulva. In woods, among dead leaves; most abundant at Whitlingham.

Helix aculeata. Sparingly, Arminghall and Caistor Woods, at the roots of moss.

Helix granulata. Osier grounds and damp woods.

Helix sericea. In Whitlingham Wood, on the trunks of trees.

Helix hispida. Common, among nettles and under stones and wood.

Helix concinna. With the above.

Helix rufescens. Not common.

Helix virgata. I have never met with this nearer than Swaffham, where it was plentiful about the Station last autumn.

Helix caperata. Occasionally abundant on the banks under hedges, in almost every lane near the city.

Helix ericetorum. Common in similar localities.

Zonites radiatus. Common under stones, timber, &c.

Zonites pygmæus. Rare under moss; abundant with the *Pupa marginata* in Mackie's sand-pit.

Zonites alliarius. Of this I have but one specimen.

Zonites cellarius. Very common in woods, at the roots of moss and under leaves.

Zonites nitidulus and *radiatulus*. Common in similar situations.

Zonites lucidus. Rare.

Zonites crystallinus. In damp woods, frequent; plentiful in the sand-pit.

Succinea putris and *Pfeifferi*. Common by ditch sides.

Bulimus obscurus. Whitlingham Wood, on the trunks of trees.

Tua lubrica. Common among moss.

Pupa umbilicata. Rare, Weston's Wood, Dereham Road.

Pupa marginata. Abundant in one small spot at Mackie's sand-pit, at the roots of moss.

Vertigo edentula. Near Mangreen Hall, on the under-side of fern-leaves. I have never found it on any other than the fronds of the Filix-mas.

Vertigo pygmæa. Rare, at the roots of moss.

Vertigo alpestris. Found sparingly with the *Pupa marginata*, as above.

Balæa perversa. Fourteen specimens, from a wall in Thorpe, beneath ivy.

Clausilia bidens. Whitlingham Wood, abundantly on the trunks of elder trees; several other woods sparingly.

- Clausilia nigricans*. Very common in moss and on trees.
Carychium minimum. Plentiful among dead leaves, in woods.
Acme fusca. Two, from Caistor Wood.
Lymnæus auricularius. Common in the river.
Lymnæus pereger. Very common in ditches.
Lymnæus stagnalis. Common in the marshes.
Lymnæus palustris. Not uncommon.
Lymnæus truncatulus. River at Whitlingham.
Amphipeplia glutinosa. Rare (See Zool. 2150).
Velletia lacustris. Common on the stems of *Sparganium simplex*.
Ancylus fluviatilis. On the Nuphar leaves, in the river at Heigham.
Physa fontinalis. Common.
Planorbis corneus. Rather common in ditches.
Planorbis albus. Sparingly in the river, on aquatic plants.
Planorbis carinatus. Not uncommon.
Planorbis marginatus. Common.
Planorbis vortex. Common on aquatic plants.
Planorbis spirorbis. On grass in wet meadows.
Planorbis nitidus. Not very common, on *Sparganium* stems.
Planorbis contortus. Common in ditches.
Segmentina lineata. Rare, near Yarmouth, Heigham Marshes.
Cyclostoma elegans. Whitlingham Far Wood ; plentiful in one small spot only.
Cyclas cornea. Common.
Cyclas calyculata. Not uncommon.
Pisidium pulchellum. Rare, Heigham ditches.
Pisidium amnicum. Common, in the river and some ditches adjoining.
Anodon cygneus, var. *anatina*. Very common in the river. Several other varieties not uncommon.
Unio pictorum. In the river.
Unio pictorum, var. *rostrata*. In the river at Heigham.

W. K. BRIDGMAN.

Norwich,
December 17, 1849.

Proceedings of the Zoological Society.

Monthly General Meeting, February 7, 1850.—W. YARRELL, Esq., in the chair.

The Lord Bishop of Oxford, E. W. H. Holdsworth, Esq., and Thomas Paine, Esq., were elected Fellows of the Society. Miss M. A. Sullivan, Rev. John L. Petit, and Thomas Tooke, jun., Esq., were proposed as candidates for the Fellowship ; and Dr. H. Schlegel, of Leyden, for election as a Corresponding Member.

In their Report on the affairs of the Institution, the Council announced that they had accepted the liberal offer made by Col. Peyronnet Thompson, on the part of his son, to present to the Society a pair of living Indian bisons (*Bos Gaurus*), which he proposes to deliver to the Society's agent at Bombay, for transmission to this country.—D. W. M.

Proceedings of the Entomological Society.

*January 28, 1850 (Anniversary Meeting).—*G. R. WATERHOUSE, Esq., President, in the chair.

The Auditor's Report of the Treasurer's Account was read, from which it appeared that the Society was now in a much better financial condition than at the corresponding period of last year.

Messrs. W. S. Dallas, E. W. Janson, J. F. Parry and J. O. Westwood, were elected members of the Council in the room of Messrs. W. F. Evans, J. Walton, J. J. Weir and the late Mr. E. Doubleday; and the following were elected to the respective offices for 1850: G. R. Waterhouse, Esq., President; W. Yarrell, Esq., Treasurer; and Messrs. J. W. Douglas and H. T. Stainton, Secretaries.

The President then delivered an address on the state and prospects of the Society, for which a vote of thanks was passed, and he was requested to allow it to be printed. Votes of thanks were then passed to the Treasurer, Secretary, and retiring members of the Council.

The Secretary announced that part 2 of vol. v. of the Society's Transactions, containing, among other matter, a general index to the five volumes, and completing vol. v., was on the table.

*February 4, 1850.—*G. R. WATERHOUSE, Esq., President, in the chair.

The President appointed as Vice-Presidents for the ensuing year, Messrs. Spence, Stephens and Westwood.

The following donations were announced, and thanks ordered to be given to the respective donors: 'A Synonymic List of British Lepidoptera,' by Henry Doubleday, and the 'Zoologist' for January and February; presented by E. Newman, Esq. 'Mémoires de l'Académie Royale de Belgique,' tome xxiii.; 'Bulletins de l'Académie Royale de Belgique,' tome xv. 2me partie, et tome xvi. 1re partie; 'Annuaire de l'Académie Royale de Belgique,' tome xvi. 1re partie; 'Mémoire de Fertilisation des Landes de la Campine et des Dunes,' par A. Eenens; 'Observations des Phénomènes Periodiques;' all presented by the Academy. Two Almanacs of the Art Union of London; presented by the Art Union. 'Literary and Scientific Register and Almanac for 1850;' presented by J. W. G. Gutch, Esq., the author. 'Descriptions and Figures of some New Lepidoptera from Nepal;' by G. R. Gray, Esq., F.L.S. 'Notice Biographique sur M. C. J. Schönherr,' par M. le Comte Mannerheim; presented by the author. 'Journal of the Royal Agricultural Society,' vol. x. part 2; by the Society. 'The Athenæum' for September, October, November and December, 1849; by the Editor. A collection of British Lepidoptera; presented by Mr. Bond.

Mr. Weir brought for exhibition a box of Micro-Lepidoptera, showing his method of mounting whole series of a species on pieces of cork of an oblong shape.

Mr. Douglas exhibited a new species of Tortrix, allied to *Stigmonota redimitana*, Gueneé, which he proposed to call *Weirana*, in honour of the indefatigable Lepidopterist (he wished he could have said Lepidopterologist) of that name: he also exhibited two specimens of a new British Tinea, the *Coasmoptyx Pinicolella* of Zeller, which he had taken from fir trees, at Wickham and Mickleham, at the end of June.

Mr. S. Stevens exhibited a very fine specimen of *Eurycantha horrida* from the South Seas: he also exhibited some beautiful new Lepidoptera, which he had

received from Mr. Bates, from Pará; and he exhibited, still living, the specimen of *Lamia textor* which had been exhibited at the October meeting.

Mr. Stephens exhibited two specimens of a new British Noctua, which appeared to be the *ruticilla* of Esper, and which Boisduval places in the genus *Orthosia*: of these specimens one had been sent to Mr. Shepherd by Mr. Edleston, and the other, which was extremely wasted, was taken by Mr. Stainton, at Sheffield, in June, 1847.

Mr. Stainton then read a paper on the genus *Micropteryx* of Zeller, in which he described all the known British species.

A conversation followed upon the notes which had appeared in the 'Gardener's Chronicle,' on the danger to be apprehended by horticulturists from the attacks on pears by the larvæ of *Ditula angustiorana*, which in some instances referred to were reported to have done some damage to this fruit. Several members concurred in saying that there was but little ground for this opinion, as, except in the instances quoted, this insect had not been observed to have attacked fruit trees, and in fact it was seldom seen in gardens, although its larvæ were polyphagous, but that the perfect insect was found in the greatest abundance in firs and yews, often far from gardens. *Tortrix lævigana*, on the other hand, was known to be very destructive to fruit trees, both foliage and young fruit, and it was supposed some of the ravages attributed to *D. angustiorana* may have been the work of this species.—*H. T. S.*

Proceedings of the Microscopical Society of London.

*February 13, 1850 (Anniversary Meeting).—*GEORGE BUSK, Esq., President, in the chair.

Addresses from the Council and Auditors, relating to the present state, prospects and funds of the Society, were read and approved.

The President then read an address, in which he gave a lucid review of the Society's proceedings during the past year, including abstracts of papers read, very similar to those that have already appeared in the pages of the 'Zoologist.' He concluded by urging on the Society the great importance of publishing Transactions with regularity, and suggested that it would answer a good purpose if the parts could appear more frequently, even though they contained a smaller quantity of matter.

A vote of thanks was passed to the President and Council, and the President's address was ordered to be printed.

It was proposed, seconded, and unanimously resolved, that an addition be made to the by-laws, to the following effect: "That all members who have passed the chair shall in future be members of Council without the ceremony of election."

A ballot then took place for officers during the ensuing year, when Dr. Arthur Farre was elected President, N. B. Ward, Esq., Treasurer, John Quekett, Esq., Secretary, and Mr. John Williams, Assistant-Secretary; and the following gentlemen were elected new members of Council,—Dr. Carpenter, Arthur Henfrey, Esq., and S. B. Simonds, Esq.; Mr. Bowerbank, Dr. Lankester, and Mr. Woodward retiring.—*E. N.*

Yorkshire Naturalists' Club.

January 16, 1850 (*First Annual Meeting*).—Professor PHILLIPS in the chair.

The officers for 1850 were elected, and the Hon. Secretary, Beverley R. Morris, Esq., M.D., then read the Report.

After the termination of the general business, Mr. Graham announced the capture of several specimens of the waxen chatterer (*Bombycilla garrula*), in the neighbourhood of York, within the last few days, four of which he exhibited. He also recorded the capture of the eared grebe (*Podiceps auritus*), at Huggate, on the 18th of December, and a fine adult specimen of Bewick's swan (*Cygnus Bewickii*), shot at Sutton on the Derwent, on the 21st.

Mr. Baines exhibited another fine specimen of the waxen chatterer, shot near York, very recently; and a most beautiful variety of the blackbird, entirely white, procured within the last week at Beningbrough.

After a vote of thanks to the chairman, the meeting separated.

February 6, 1850.—O. A. MOORE, Esq., in the chair.

Mr. Graham announced the occurrence of three specimens of the pink-footed goose (*Anser brachyrhynchus*) in the York district, within the last few days, all of which had passed through his hands. He also exhibited a very curious wigeon, which he thought might prove to be the American one (*Anas Americana*), and which he had purchased that day in the York market. Three specimens of the red-necked grebe (*Podiceps rubricollis*), in the winter plumage, had also come under his notice; one shot in the Ouse, in the middle of York, about a fortnight ago, but which he did not secure; the others, shot at Acaster a few days back, he has preserved: the irides of all these specimens were of a dirty yellowish white colour, and not red as is usually recorded. Dr. Morris had seen these birds in the flesh, and had noticed the same peculiarity.

Mr. T. H. Allis exhibited two very remarkable Lepidopterous insects, which were evidently completely hermaphrodites; one was the silver wash fritillary (*Argynnis Paphia*), one side of which, both wings and antenna, showed all the appearances of the male, while the opposite side was as decidedly female; the other was a specimen of the emperor moth (*Saturnia Pavonia-minor*), one side being completely male, the other female.

Since the commencement of the present year the following gentlemen have been enrolled as members of the club: W. R. Read, Esq., of Heyton; D. Russell, Esq., York; F. Cholmeley, jun., Esq., of Spennithorne; H. Cholmeley, Esq., of Brandsby; B. T. Wood, Esq., of Thorpe Green; W. Garwood, Esq., York; J. Hawley, Esq., Doncaster; Rev. H. V. Palmer, York; J. C. Robinson, Esq., Clifton; and H. Rooke, Esq., Scarborough.—B. R. M.

The Timearist's Calendar for March.—Many entomologists will now begin to look for the insects which appeared in the preceding month; but March, though it may certainly display the insects of February, produces many more than the most indefatigable collector in February could meet with. Exapate Salicella may be expected towards the close of the month, and, though a sawfly-feeder, appears rather local: it has occurred at Wanstead and at Wimbleton Common. Chimabacoe Fagella will

be found in plenty, reposing on palings and trunks of trees. *Semioscopis Avellanella*, apparently frequenting birch, will be found in Dulwich Wood, on the trunks of trees by day, or flying at dusk. *S. Steinkellnerana* will perhaps appear at the close of the month, among blackthorn. *Talæporia inconspicuella* (larva) will now be found on various palings, particularly at Penge. *Micropteryx purpurella* and *semipurpurella* will swarm among the birches at Wickham and elsewhere; the scarce *unimaculella* will be sometimes found in their company. *Plutella cultrella*, a spindle-tree feeder, hibernates, or perhaps sometimes passes the winter as a pupa, and will now appear, occasionally resorting to the willow-blossoms. *Depressaria characterella* will also be found among willows; and various other flat-bodies will occasionally be stumbled upon by those in search of sport. *Ocnorostoma Piniariella* will be found among fir-trees. *Gracilaria stigmatella* is another willow-frequenting which hibernates, as indeed do most of the other species of this elegant genus; and *Elachista testaceella* shows its affinity to them by copying this habit, and flits about the leafless hedges by day and night. *Lyonetia Clerckella* will sometimes be beaten from fir-trees, though hitherto only the dark variety has occurred at this season.—*H. T. Stainton.*

Economy of Tortrix Strobilella.—On the 10th of May, 1848, while searching for Lepidoptera in a small fir plantation at Purley, near Croydon, in company with my friend Mr. Waring, we took several specimens of a small Tortrix new to us, which Mr. H. Doubleday has since found to agree admirably with the Linnean description of *Strobilella*. Having noticed, on this occasion, many small moths flying about the cones of spruce fir, I thought it not improbable that the larvæ might feed therein: last spring, therefore, I split open several, and at length found a small pupa in a cell formed in the woody stalk of one of them: having little doubt this was the insect in question, I procured a number of cones, and found more pupæ and two or three larvæ, apparently full fed, all in similar cells to the first, the heads of the pupæ being turned towards a small hole, by which the larvæ had evidently entered: from these I bred *Strobilella*, from the second week of May to the latter end of the month. The larvæ, which are whitish with a darker head, appear to feed inside the cones while still unripe and soft, and when full fed eat their way into the stem to change to pupæ: when the time arrives for the moth to emerge, the pupa forces its way out of the hole above mentioned, and passes up between the scales of the cone to open air: the distance thus to be travelled by the pupa, in the large spruce cones, is often more than an inch. I happened to be looking at one I had split open, containing a pupa, when the moth was about coming out: the pupa managed to get its head into the hole made by the larva, and quickly disappeared: wishing to see how long it would be making its way to the outside, I watched it, and in about five minutes the head of the pupa was protruded between the scales about an inch from the cell it had left, and the moth quickly came forth. In many of the cells I found the pupa of a small species of *Ichneumon* instead of that of the moth: the flies from these made their way out in the same manner as the Lepidopterous insect, which they had no doubt destroyed. Last summer I found the cells formed by the larva of this moth in the spruce fir cones at Black Park, and no doubt it might be obtained in many places now its economy is known. I was surprised that Mr. Douglas, who, through the information I had given him, succeeded in taking this species, should so hastily announce it, more especially as his note (*Zool.* 2504), read at the Entomological Society's meeting on the 4th of June, contains nothing more than I had told all my friends a year previously, Mr. D: amongst the rest.—*Edwin Shepherd; Fleet Street, February 1, 1850.*

The Genus Anthrocera.—I shall feel greatly obliged if some of your entomological correspondents will kindly assist me by forwarding to me, during the coming season, a dozen or two of the larvæ of any of the species of *Anthrocera* that may happen to occur in their particular locality, with food, &c. The number of species indigenous to this country is anything but satisfactorily fixed, and can only be ascertained with certainty by strict and careful comparison of habits, larvæ, pupæ, &c. I have long felt a desire to investigate the genus thoroughly, and propose to obtain sets of larvæ from as many different localities as possible, and, feeding each lot in a separate cage, to make carefully accurate figures and descriptions of them during their several stages, and such notes of peculiarity of habit and economy as may tend to throw light on the matter. Several of my entomological friends have already promised to assist me; and if others—more especially those residing near the coast—will kindly do the same, I shall hope, before the end of the year, to arrive at some conclusions worthy of being recorded in the pages of the 'Zoologist.'—*John Hawley; Hall Gate, Doncaster, February 4, 1850.*

Occurrence of Cheimantobia Borearia in Cheshire.—Four males of this moth were captured at Petty Pool, Delamere, Cheshire, on the 31st of October, 1848. They were resting on the trees.—*Benjamin Cooke; Warrington, February 15, 1850.*

Notes of Captures of Tineidæ, with Remarks on the Specific Distinctions of some closely-allied Species. By H. T. STAINTON, Esq.

(Continued from page 2633).

Where no locality is mentioned, Lewisham is to be understood.

Gelechia lobella. Sparingly, in hedges, June 14 to 25.

Gelechia rufescens, Haw., Douglas (Ent. Trans. v. 195), Isabella of Mann, and of my Catalogue. One among willows, June 19; one at Charlton sand-pit, July 11; one at Mickleham, July 8; one on palings at Lewisham, July 28; and one at Charlton sand-pit, August 9. It thus appears to keep out a long time.

Gelechia cinerella. Two on Box Hill, July 9.

Gelechia Malvella. I bred this in great abundance from hollyhock seeds, June 26 to July 15. The seeds gathered in the preceding autumn require to be kept rather moist, as the larva is not full fed till April or May.

Gelechia tricolorella. I beat several from oaks, July 28 to August 30.

Gelechia maculiferella? or a closely-allied species. It much resembles *tricolorella*, but the anterior wings are shorter and blunter; the costal blotch does not touch the costa in its whole extent, but only at its origin; and the fascia towards the hinder margin is straighter than in *tricolorella*. I took five flying along a hedge, on the 5th of August, and considered them at the time as *tricolorella*.

Gelechia costella. I beat one (a hibernated specimen) from an oak, May 23; one August 26th and one on the 28th, from oaks.

Gelechia maculella. In hedges, not scarce, July 28 to August 12.

Gelechia domestica. One at light, July 27; two at light, August 22. These may have bred in the house.

Gelechia peliella. No longer unique in my collection, having been taken at Wickham, last July, by Messrs. Bedell and Douglas.

Gelechia affinis. I took two very finely-marked specimens on a horse-hair sofa, at Mickleham, July 7; and two on palings, at Lewisham, July 21 and 22. Mr. Douglas and Mr. Farr met with it at Portland.

Gelechia mulinella, Tis., Z. (*interruptella*, Haw. and my Catalogue, not of Hubn.) Common among furze-bushes at Stoa's Nest, August 2, and these fine; common among broom and furze at Charlton, August 10 to 20, but mostly wasted. It is an insect that very soon wears, probably from its exceeding restlessness, which makes it very difficult to box.

Gelechia longicornis. I took a single rather wasted specimen on the moors at Woodhead, June 9.

Gelechia proximella. One at Torwood, June 1, among mixed underwood; three at Wickham, June 23, from birches.

Gelechia sequax. One at Mickleham, July 26, from juniper; two from juniper, at Stoa's Nest, August 2.

Gelechia Mouffetella. I found a specimen in one of my cages in which I had kept a number of larvæ from honeysuckle and other plants. I have no recollection of seeing the larva; the moth appeared July 13.

Gelechia triparella. On oaks, sparingly, May 21 to June 25.

Gelechia scriptella. Not scarce among maple, May 27 to June 25.

Gelechia ligulella. Two at light, June 28.

Gelechia taniolella. Not scarce on the downs at Mickleham, in July.

Gelechia Anthyllidella. Two at Charlton, August 9, very fine; several at light, August 12 to 26.

Gelechia tenebrella, Hub. ? Tr., Z., Douglas (Trans. Ent. Soc. N. S. i. 16). Metal-
lella of my Catalogue, but not of Stephens: see Trans. Ent. Soc. N. S. i. 24.

Gelechia dodecella. I bred this very plentifully in June, from the shoots of *Pinus sylvestris*.

Gelechia vulgella. Very common on palings, in August.

Gelechia Artemisiella. This is probably double-brooded. Mr. Gregson met with it at New Brighton, early in June; and I found it swarming on Box Hill, July 9.

Gelechia marmorea. Taken in plenty at the beginning of June, by Mr. Gregson, at New Brighton.

Gelechia nigrovittella. Two from oaks, August 13 and 19.

Gelechia nanella. Three on palings, July 18 and 22.

Gelechia albiceps. Sparingly on palings, July 19 to August 15.

Gelechia Lappella, L., Douglas (Trans. Ent. Soc. N. S. i. 14). Five specimens bred by Mr. Weir, from the seeds of *Arctium Lappa*, in June.

Gelechia paucipunctella, Z., Douglas (Trans. Ent. Soc. N. S. i. 14). Two specimens taken by Miss Sara B. Dunn, on Box Hill, July 9. I took a very fine one at Charlton, August 9, beating it from broom.

Gelechia neuropterella. Taken by Mr. S. Stevens, at Deal, in August.

The following species of *Gelechia* are not mentioned in my Catalogue:—

Gelechia notatella, Tr., Douglas (Trans. Ent. Soc. N. S. i. 18). *Proximella*, var. β ., Z. Allied to *proximella*, but smaller and darker: it feeds on the willow, and has been bred by Mr. Shepherd, in May, from larvæ found the preceding autumn.

Gelechia luteiventella, Z., Douglas (Trans. Ent. Soc. N. S. i. 15). I took a specimen on Ham Common, in July, 1842. Mr. Allen Hill has a specimen which he took on the 22nd of July, flying among mare's tail (*Hippuris vulgaris*), by the side of Bagwood Brook, some miles from Bristol.

Gelechia lucidella, St., Douglas (Trans. Ent. Soc. N. S. i. 15). *Stagninella*, Z. in litt. See Zool. 2613.

Gelechia Atriplicella, F-v-R., pl. 78, Z., Douglas (Trans. Ent. Soc. N. S. i. 20). Occurs sometimes at Charlton sand-pit, in July.

Gelechia obsoletella, F-v-R. pl. 79, Douglas (Trans. Ent. Soc. N. S. i. 20). Taken rather plentifully, by Messrs. Douglas and Farr, at Portland, in July last.

Gelechia atrella, Haw. (*spiniferella*, Benth. Mus.) Occurs among furze-bushes, in July.

Raslerstammia pygmaeana. Four, beat from hedges, at Lewisham, April 26, May 2 and 15; one at Wanstead, flying over a whitethorn bush, May 3.

Raslerstammia fusco-viridella. In a field near York, May 30, common. This species, so common with us, has not yet been detected in Germany.

Echmia Fischeriella. At Lewisham, May 23 and 24, sparingly; in plenty at Carron, June 4; one on the Dartford Heath fence, June 27; three in Birch Wood, June 27; and common on the downs at Mickleham, July 6 to 11. These specimens, taken through a period of seven weeks, and in such distant localities, all appear to be the same species.

Echmia obscurepunctella (*Elachista*, No. 31 of my Catalogue, but certainly belongs to this genus, resembling *sericiella* in form and habits). Ten, beat from mixed hedges at Lewisham, April 28 to May 2; three at Wanstead, May 3; one at Sanderstead, May 5.

Echmia sericiella. Common at Wanstead, May 3, and at Lewisham, May 4 to 26, on oaks. This is not the *metallicella*, F-v-R., nor do I think it can be the continental *saltatricella*, which appears too large and not sufficiently brilliant for our species.

Echmia metallicella, F-v-R. pl. 84, f. 2. New to this country. Differs from *sericiella* in being much smaller (little more than half the size); anterior wings darker, with the spots whiter. I took two specimens at Wickham, June 23, among oaks; and one I beat out of a nut-bush, in the lane leading from Birch Wood to Dartford Heath, June 27. Mr. Sircom also met with it at Brislington, June 23.

Argyresthia semitestacella. Frequents the beech: taken at Sanderstead by Mr. Bedell, at Duddingstone by Mr. Logan, and at several localities in Stirlingshire by myself, from that tree, in September. This is not the *Spiniella* of Zeller.

Argyresthia spiniella, Z. (Linn. ii. 254). New to this country. I met with it in Torwood, Stirlingshire, September 17, beating it from mountain-ash (*Sorbus Aucuparia*).

In my monograph of the genus, I stated (Zool. App. vi) that I had my doubts whether *Spiniella*, Z., were really identical with our *semitestacella*: the correctness of these doubts is now proved by the actual occurrence of the two species in this

country. I quote below the remarks of Zeller on the distinctions between this species and *Pruniella* (*ephippella*, *mihi*) and *Fagetella* (*albistria*, *mihi*).

"*Spiniella* most resembles *Pruniella* and *Fagetella*, but in size far exceeds both, especially the latter. From the former it is distinguished by the much darker and more uniform colour of the anterior wings, the want of the last short costal streak before the apex, and the want of a fascia reaching to the costa, since it is only to be traced as far as the fold of the wing. In the small *Fagetella* the ground colour is much paler and more rust-coloured, and the inner margin—from the base to the brown marginal spot—is narrower."

Spiniella more closely resembles *semitestacella* and *semifusca*, species that were unknown to Zeller when he wrote. From *semitestacella* it may always be readily distinguished by the deeper colour of the anterior wings, and by the distinctness of the fascia on the inner margin, which is there broad and very dark. Zeller states that this fascia forms a right angle with the dark portion of the wing; but this does not appear a constant character, as—though it is the case in most of my specimens—in one of my finest specimens the angle formed is an acute angle: from *semifusca*, *Spiniella* is distinguished by its larger size, and the paler (less purple) colour of the anterior wings, which frequently allows of the fascia being traced half across the wing. The semipurpurella of Mr. Curtis's cabinet appears to be this species, but it does not appear ever to have been described.

Argyresthia semifusca. I have not met with this myself, though I beat the hedges where I met with it in 1848 very assiduously. Mr. Bedell took a few specimens among the beech trees at Sanderstead, along with *semitestacella*, at the beginning of September.

Argyresthia abdominalis. Not scarce among the junipers at Mickleham, July 6 to 11, but many of the specimens much wasted.

Argyresthia dilectella. Common among the junipers at Mickleham, along with the preceding, and generally quite fine. I also met with several specimens on palings at Lewisham, July 28 to August 4.

Argyresthia Sorbiella, Tischer (see Zool. App. xv.) This species, which is new to this country, was taken by Mr. Allis, on the moors near Halifax, from mountain ash.

Argyresthia arceuthina. Sparingly, at the end of May, among some junipers in my garden.

Argyresthia præcocella. Taken at Sanderstead, about the middle of May, by Messrs. Douglas and Shepherd.

Argyresthia aurentella, Z. (see Zool. App. xl). Scarce, among the junipers at Mickleham, July 6 to 11, apparently then just coming out; common there July 23 to 27, and on the downs at Stoa's Nest, August 2.

Your readers will observe (Zool. 2634) the report of the exhibition, before the Entomological Society, of a specimen of *Argyresthia amiantella*? The true *amiantella* should be as large as *Piniariella*, but with a yellowish head: the specimen taken by Mr. Dunning is much smaller than *Piniariella*, and the head is unfortunately rubbed; but as the length of the palpi is a certain proof that the insect is quite distinct from *Piniariella*, we may safely set it down as a new species, though till more specimens are obtained it will be impossible to decide upon its name. This specimen was taken on the 26th of June, in the lucerne field of *Agrophila sulphurea* notoriety, at Brandon, and in the vicinity of this field were many Scotch and spruce firs and larch trees.

Ocnerostoma Piniariella. Very plentiful on the Dartford Heath fence, June 27, and taken there by myself, Messrs. S. Stevens and G. S. Heales.

Coleophora. I do not at present venture to say anything about this genus. Zeller's masterly monograph in the 'Linnæa Entomologica,' vol. iv., is now published, and to the German reader will prove a great treat: as soon as I can get it devoured and digested, I will publish a review of it.

Gracilaria. I am not yet in a condition to furnish the proposed monograph (Zool. App. xxiv). I have sent a number of specimens to Herr Zeller for his opinion, and as soon as I can get his reply I will lose no time in working it up.

Cosmopteryx præangusta. I observed this sitting in great numbers on the trunk of a willow, July 28. I had previously imagined it was confined to poplars.

Cosmopteryx pedella, Linn. (*angustipennella*, Hbn.) One specimen, beaten from an alder, at Brandon, on the 17th of July, by Mr. Dunning: another specimen is in the collection of Mr. Edleston.

Cosmopteryx Lienigiella, Z. Two specimens in Mr. H. Doubleday's collection, taken at Yaxley, in June. This is a most beautiful new species; and I should have despaired of describing it so as to be recognized, but as Zeller has done so I cannot do better than translate his description, which is in the *Isis*, 1846, p. 298. "This very beautiful little insect was only once taken by Mme. Lienig. It is somewhat larger than *pedella*, and has as slender-pointed anterior wings as Zieglerella, with which it is also nearest allied in this genus. Head and thorax loam-yellow, darker than the anterior wings, the former with three fine white long lines, of which the two side ones pass close by the eyes to the antennæ; the medial one passes also along the thorax. Antennæ brownish, the basal joint very long, at the end thickened like a club, with a fine white long line on the fore side. Lower part of the face white. Palpi as long as the head and thorax together, thin, curved outwardly, shining whitish, externally yellow-brown; the second joint slightly thickened at the end, somewhat shorter than the terminal joint. Tongue scaled above. Legs silky yellowish, the anterior on the light side yellow-brown. Hinder tibiae rather thin, scantily haired, before the apex brownish, at the apex with a tuft of whitish hairs. Abdomen gray, on the sides of the rings with silvery white scales. Anal flap large, rounded, externally clothed with yellowish hair-scales. Belly whitish. Anterior wings loam-yellow, on the inner margin very narrowly white as far as the cilia: on the costa a fine white line arises at the base, which soon turns inwards, and is hardly a fourth of the length of the wing: an equally fine white straight line, arising from the middle of the base, reaches rather further, and beneath its apex is a white longitudinal little streak: beyond the half of the wing the costa is again coloured white narrowly: beyond the middle of the wing two unequal gold shining lines enclose a pale orange-yellow fascia, rather expanded towards the costa; the first has on the fascia, above and below, a deep black spot: not far beyond this begins a rather thick white long line, which reaches through the apex of the wing to the end of the cilia: the cilia of the costa are white, the remainder yellowish gray. The gray posterior wings are much thinner than in *pedella*: the under-side shining gray. The margins of the anterior wings are (the costa first from the middle) narrowly whitish, which gradually expands, so that the apex of the wing is only run through by a long gray streak."

Cosmopteryx Piscolella, Z. (*Isis*, 1839, p. 210). "Anterior wings bone-yellow, with a distinct brown spot at the anal angle, and generally a faint one before the middle." Also new to this country. One specimen taken by Mr. Bedell, on the

evening of July 13th, "somewhere between Sydenham bridge and the sign-post marked 'Bee Hive.'" Two specimens taken by Mr. Douglas, at Wickham and Mickleham, from firs, at the end of June.

H. T. STANTON.

Mountsfield, Lewisham,
February, 1850.

(To be continued).

Entomological Revelations.—I have for some years maintained that we have very few really rare species of Lepidoptera, yet the word *rare* is in great request, and is used as the most powerful lever that can be applied to force insects to change their place in one cabinet for a vacant place in another. It is an important object to ascertain what leads to the reported rarity of any given species, and I shall therefore glance at some of those species which have been honoured with this reputation for rarity. The extraordinary success of Mr. Weaver at Rannoch is familiar to all entomologists: in 1847 I visited this celebrated locality, and on the very day of my arrival I took *Hadena rectilinea*, *Anarta cordigera*, *Anarta menalopa*, and *Acronycta Euphorbiæ*, as well as three specimens of *Geometra carbonaria*. I found that large blocks of granite were the favourite resting places of *A. Euphorbiæ* and *A. cordigera*, and in such localities I succeeded in taking above eighty specimens of the former: the pupa-cases, as well as the perfect insects, were on these granite blocks: of the latter I took but twenty-seven, as they are extremely wary, taking flight at the least alarm, and when on the wing flying with wonderful rapidity. Of *Geometra carbonaria* I met with four specimens only: I believe the season was rather past for them, it being the first week in June. On the very highest and most exposed summits of the hills I captured twenty-seven of *Anarta melanopa*, starting them up from among the *Lycopodia* which abound in such situations. This species is not difficult to approach, and is very partial to the wild thyme. Having found a specimen of *H. rectilinea* on the heath, I sugared for this species, and eventually succeeded in taking above eighty of them. I may here observe that very few species were attracted by the sugar: *Hadena adusta* and *Pisi*, *Rusina tenebrosa*, *Acronycta Euphorbiæ*, a species of *Triphæna* and *Xylophasia polyodon* were all that occurred, the first of these in profusion. On some of the western hills I took a pair of a new *Scopula*. On *Schehallion* I was fortunate enough to meet with *Psodos trepidaria* about three quarters of the way up the mountain. I saw them settling on black stones that looked like smoked limestone, and I observed that they got on the shady side of the stones, the sun being intensely hot; with this rare species I succeeded in filling a hundred boxes. On the very summit of *Schehallion*, just by the beacon erected by the Ordnance Survey, I took a pair of *Anarta melanopa*. In the Black Forest I took plenty of the beautiful *Coccyx cosmophorana* flying round young pines in company with *C. coniferana*: here I also met with three specimens of *Tinea picarella* on an old lichen-covered stump. In the Pass of Killiecrankie I took a pair *Coccyx lunulana* flying in the sunshine. On leaving Rannoch I took about two dozen specimens of *Speranza sylvaria*. In the Isle of Arran I took twenty-eight specimens of *Plusia interrogationis* in three days, and no less than forty of *Charissa obfuscaria* in one day. Subsequently, at Carlisle, I took

Noctua depuncta and Dahlii by sugaring; the latter was a complete pest, and of the former one hundred and twenty specimens were taken: this insect was lately doubted as British, and four specimens only had been heard of. Again, I must allude to Mr. Dunning's capture of Agrophila sulphurea, and still more lately that of Polia Lichenea by my friend, Dr. Nelson, in such extraordinary profusion. I much wish some of your other correspondents would favour your readers with their views on this interesting subject, more especially with regard to the Bombycidae.—J. B. Hodgkinson, 12, Friday Street, Preston, January 8, 1850.

[I am much pleased to observe the spirit of liberality thus evinced in making known the abundance of insects supposed to be rare. I hope Mr. Hodgkinson will send me up a few boxes of Anarta melanopa, Psodos trepidaria, &c., and Dr. Nelson of Polia Lichenea for distribution among entomological callers: as I have no collection of any kind I cannot use them as levers, but will give a series to every applicant. Edward Newman].

On the Identity of Tortrix Penziana of Thunberg with Cnephasia bellana of Curtis.

By JAMES FRANCIS STEPHENS, Esq., F.L.S.

In the dissertation on the insects of Sweden, by Becklin, under the presidency of Thunberg,—known by the title of Thunberg's 'Insecta Suecica,'—a rare work, of which I fortunately possess a copy, the following description appears in page 43:—

"Tortrix Penziana: *Alis albis fusco-irroratis: fasciis tribus obliquis articulatæ nigris.*

"*Habitat in Sueciæ meridionalibus Provinciis. Consiliar. D. Pentz.*

"*Tortrice Rosana paulo major et magis oblonga.*

"*Alæ anticæ oblongæ, obtusæ supra albæ lineolis fuscis irroratæ; fasciæ tres oblique, atræ, subarticulatæ articulis quadratis. Subtus fuscæ, immaculatæ, ciliatæ. Alæ posticæ supra fuscæ, subtus albidæ margine exteriori fusco maculatæ.*"

A plate accompanies the essay, on which a figure of the insect is depicted (t. 2, f. 1). The above was published in December, 1791.

In 1796 Hubner commenced his beautiful 'Europaischer Schmetterlinge,' and about 1799 plate 14 of his *Tinea* appeared, with a figure (No. 86) of an insect called Penziana, but, as usual, without any authority being cited. From that period till 1816 no further notice of the name occurs in all the very numerous authorities which I have consulted upon the point, not by the slovenly habits of investigation of referring to the mere indexes, but by patiently wading through the respective pages. In that year Hubner published his 'Verzeichniss,' &c. (an arranged index to his great work), in which he refers *his* Penziana—which does not accord with Thunberg's—to the conspersana of the Wien. Verz., thus characterized, &c., by Fabricius in his Ent. Syst. (vol. iii. p. 266), 1794:—

"P. alis anticis niveis maculis atomisque nigris sparsis.

"Wien. Verz. 130, 14.

"Habitat in Austria Mus. Dom. Schieffermyller.

"Magna. Alæ anticæ nivæ maculis parvis atomisque innumeris nigris. Posticæ cineræ. Corpus niveum."

This description is too indefinite to agree either with Hubner's or Thunberg's insects, and Treitschke entirely omits any reference thereto. Again, neither Fabricius

in the place above cited, Illiger in his revision of the *Wien. Verz.* (two vols. 8vo. 1801), nor Charpentier and Zinc-Somers in their remarks on the insects contained in the Schieffermyller collection (1821), refer to either of the figures in question: in fact Thunberg's insect is totally lost sight of by *all* subsequent writers to the present day, excepting my reference thereto in the 'Systematic Catalogue,' in 1829, and Zetterstedt, in his 'Fauna Lapponica,' in 1840. A few months previously to the publication of the Catalogue I obtained from Weaver a pair of the insect in question, with uninterrupted fasciæ on the upper wings, as in Curtis's figure (pl. 100, 1826), and which I immediately identified therewith: remembering, however, the figure and description in Thunberg, I compared them with the insects, and should have been perfectly satisfied with their identity had it not been for the integrity of the fasciæ: hence I placed a ? to the reference. Subsequently I have procured a series of the insect, which—like the majority of the Tortricidæ—is very variable, and am confirmed in my opinion that they are identical with Thunberg's, which, moreover, is a northern species.

Duponchel, in his vol. xi. (vi. Nocturnes), t. 256, f. 1, *a*, *b* (1834), introduces two figures as the *Penziana* of Hubner: one of these Guenée considers synonymous therewith, and probably with *trifasciana* of Fabricius; the other he refers to his *Diurneana*, which again is now supposed to be identical with *bellana*; but in his (Guenée's) definition of the upper wings the words "*fusco, nigro, flaveoloque inductis*" occur, which last colour seems to cast a doubt upon the point. Curtis considers his—or rather Haworth's *MSS.*—*octomaculana* (of which insect, till very recently, I had only once had a casual view) as "considerably like, if not identical with, Hubner's *Penziana*, t. 14, f. 85."—(*Ann. and Mag. Nat. Hist.* 1850, p. 112).

This last fact sufficiently elucidates the difficulty of the subject; which is further corroborated by Guenée saying, in reference to his *Diurneana*, "*Cum Penziana (Hubner's) confusa, Synonymiaque ferè inextricabilis.*"

From the above remarks the reader may be enabled to judge how far caprice induced me to *restore* Thunberg's original name, applied in honour of his friend Pentz; the total neglect of which, by subsequent writers, has thus formed the basis of a fallacious theory much more "destructive to science" than ignorance, a quality, as above shown, not inapplicable to all parties; which may be further illustrated by the following list of Tortrices, extracted from the '*Insecta Suecica*,' of which no subsequent writer—excepting, in part, Zetterstedt, in the work above noticed, in 1840—has taken notice.

Pars I. 1784.

- p. 19. *purpurana*.
- " *montiniana*.
- " *Osbeckiana*.*
- p. 20. *scriptana*.
- p. 21. *Westriniana*.*
- p. 22. *Gyllenhabliana*.*
- p. 23. *retusana*.
- " *ferrugana*.
- " *punctana*.
- p. 24. *lunana* = probably *Walkerana*.

Pars III. 1791.

- p. 43. *Penziana*.*
- " *Rhenana*.*
- p. 44. *fimbriana*.*
- " *Hirundana*.*
- p. 45. *Grønlandiana*.*
- " *Halliana*.*
- " *grossana*.

* Of these species there are figures.

Some of these names will, I fear, sadly perplex the advocates of what may not be inaptly termed the *mononimique* system of Micro-Lepidopterous nomenclature,—as we certainly have *purpurana*, *scriptana*, *retusana*, *fimbriana* and *grossana*, applied respectively to very different insects from those bearing the names in question in our catalogues; and I strongly suspect that *lunana* will, by the advocates of either system, supersede *Walkerana*, the *now-called* *prodromana*, on the score of priority, as the *lunana* of Fabricius (an East Indian insect) was not described till 1794.

J. F. STEPHENS.

Eltham Cottage, Brixton Road,
March 2, 1850.

A few Words on Tortrix pygmaea of Haworth.—Justice to the memory of my late friend Haworth impels me to state that his example of *Tortrix pygmaea*, now in my possession,—although in beautifully perfect condition as far as regards the size,—is wholly destitute of head and legs, caused apparently from the original bad pinning of the specimen, which was the one whence Wood's figure (No. 1136) of the insect was designed, and a *careful investigator* might have readily ascertained the same by a reference to Haworth's work. My original specimen, caught in Darent Wood, above thirty years since, is in a still worse plight, wanting an upper wing and the abdomen, as well as head and legs. I possess, however, one recently-captured specimen—from Darenth also—in fine condition, which well exhibits its divisional characters.—J. F. Stephens; *Eltham Cottage, Brixton Road, March 2, 1850.*

Entomology of 1721.—The following extract is from Bradley's 'Works of Nature,' 1721. Mr. Dandridge observes that there "are gradual alterations from a perfect moth to the bee kind; and indeed, if we examine the 26th plate, taken from his cabinet, we may observe a just progression from one to the other. The antennæ of all are alike, and their bodies are just different enough to be distinguished from one another, bearing about the same proportions of difference that a horse does to a mule and a mule to an ass. The wings are four in each, those of the moth (*Macroglossa stellatarum*) feathered all over: next to which is a degree of moth with transparent wings, feathered only about one-fourth part (*Sesia fuciformis*). The third with wings like the second, but thinly feathered on the edges (*Sesia bombyliiformis*). And lastly, the humble bee (*Apis terrestris*), whose wings have no feathers; and so I doubt not but we might proceed as gradually through the bees, wasps, and Ichneumon kinds of flies, and such as have only two wings." Plate 26 of the above work contains figures of the moths named, very fairly executed.—Edmund Sheppard; *Arundel House, Fulham, February 13, 1850.*

Habitat of Nomada armata.—Mr. Stevens informs me that the precise locality where he captured the above-named bee was in Buckland Wood, South Devon, near Spitchwick Park. Mr. Curtis has been misinformed respecting the unique Devonshire specimens in the British Museum, that is if he confines his remark to the Hymenoptera. I observed at page liii of the Appendix to the last volume that I had had the pleasure of confirming the *right* of some of the unique Devonshire specimens to be considered indigenous. It is possible that some of the unique specimens may

not be British species; but I think it will prove to be so only in cases where no locality is given, and no doubt such have by accident been placed there.—*Frederick Smith*; 11, *Constitution Row, Gray's Inn Road, February, 1850.*

Do Bees always select a Residence prior to Swarming?—In the 'Zoologist' for November (Zool. 2613) is a note from Mr. Green, intended to show that bees do not always select a residence prior to swarming. As applied to after-swarms there can be no doubt of this: indeed if there be any doubt upon the subject, it is whether such swarms ever select a residence; but as respects prime swarms, I have as little doubt that they do generally, if not uniformly, make such a selection. The late T. A. Knight, Esq., devoted much time, in several successive years, to ascertain this point, and felt assured that prime swarms invariably selected their future residence; and this opinion is quite in accordance with my own experience. Whether the providence shown by prime swarms, and the improvidence of after-swarms, may be attributed to the first having the circumspection of an old queen,—as apparently shown under some other circumstances,—whereas the last are accompanied by queens that are only a few days old, of course cannot be affirmed, though it seems very probable. The first issue mentioned by Mr. Green I conceive to have been an after-swarm: on the second there may be some doubt; but if it should turn out to have been a prime swarm, I should judge that there had been some previous friendly intercourse between the two neighbouring stocks.—*Edward Bevan, M.D.; Hereford, January 22, 1850.*

Increase and Decrease in Weight of a Hive of Bees.—The very interesting statement of the increase and decrease of a hive of bees, given by Mr. Fox (Zool. 2680), induced me to contrast it with a similar one made and entered in my diary during the latter period of time given in his chart, viz., from the 18th of June to the 12th of July. A very fine swarm rose in my apiary on the first-named date, consisting of 5 lbs. of bees, which were put into a hive of beautiful clean combs. I weighed them at longer intervals of time, and not daily as Mr. Fox did his hive. My apparatus is portable and convenient for weighing, but as the steelyards are used I cannot come nearer than $\frac{1}{4}$ lb. Both the hives were prepared with combs; and the following tabular statement will show the gain of each hive, according to the dates which I have taken.

				<i>Mr. Fox's hive.</i>	
				lbs. oz.	lbs. oz.
Increase from June 18 to 23 inclusive	.....			5 0	2 15
" " 24 to 28 "	.....			5 4	3 12
" " 29 "	.....			2 0	" 10
" " 30 to July 1 "	.....			2 0	1 4
" July 2 to 8 "	.....			2 12	3 0
" " 9 "	.....			" 12	" 10
" " 10 to 12 "	.....			5 12	3 0
Clear gain of each hive from June 18 } to July 12.....				23 8	15 3

The gross weight of my hive, on the 12th of July, was 33 $\frac{1}{4}$ lbs.: it was not weighed again until the 24th of August (when it was 27 $\frac{1}{4}$ lbs.), about the time I usually take the weight for stocks. There is one striking feature given in Mr. Fox's table, which I think principally accounts for the difference of weight: his had sent out two fine

swarms, the second one six days previous to my swarm rising, which would materially diminish the number of working bees in the stock for some time. Indeed this statement clearly shows that the gain was very trifling for some days after, although the weather was fair: it also proves that when the season is genial for breeding, and productive in honey, a hive, after sending out two swarms, although not very early, can get a sufficiency of store to make an excellent stock for the next year. Doubtless much depends on the locality where bees are kept, and very much on the seasons.—*John Green; Melbourne, Derbyshire, March 5, 1850.*

Notes on the Stylopidae.—It is worthy of remark that every one of the specimens that I have seen labelled "*Stylops Dalii*,"—excepting my own and those I gave to the British Museum and Mr. Curtis,—are not that species. It is perhaps difficult to distinguish the different species of *Stylops* properly, but *S. Dalii* is quite clear at the base of the wings: moreover, there is a difference in the outline of the wings. *S. Dalii* is only bred from *Andrena labialis*; whereas the others I have seen have the base of the wings dark, and were bred from *Andrena convexuscula*. I suspect the same species does not infest different species of bees. I incline to think that the specimens of *Halictophagus* which I have taken belong to different species: the Portland specimen, which was unluckily nearly deprived of its antennæ in getting it into the quill, has the nervules or wing-bones much darker and stouter than the others; besides the dates of the capture are very different. I had a fourth in my net, not far from this place, but lost it owing to the wind, which turned the net inside out just at the time I had nearly got it into the quill: this specimen appeared to be smaller than either of the others. I have more than once found *Halicti* infested with *Stylopidae*, and this circumstance induced me to give the name of *Halictophagus* to the genus.—*J. C. Dale; Glanville's Wootton, January 8, 1850.*

On setting different species of Earwigs.—Sometimes when rough methods fail, gentler means succeed: this I found to be the case in setting the wings of *Labia minor*. I first gum the body on a card, setting out the legs and antennæ; then I blow the wings out on a small globule of water on each side, and, when they are nicely expanded, draw off the water. The wings of *Labidura gigantea* I have found to be much more delicate, and smaller in proportion, than those of *Forficula auricularia*, although not quite so delicate as those of *Labia minor*.—*Id.*

The Earwig (Forficula auricularia) known to use its Wings.—I observe you say (*Zool.* 2695) that the common earwig is not known to use its wings. I have had ocular proof to the contrary more than once, by the capture of it by moonlight, at the time I was visiting the trees where I had placed sugar to take moths. I found few moths come when the moon shone; but wasps, hornets, earwigs, *Scelopendræ*, *Carabus exasperatus*, and other smaller *Carabidæ* and also other *Coleoptera*, *Acrida* varia, *Phryganæ*, *Perlæ*, &c. In the day-time I have seen flies innumerable, and also butterflies,—as *Vanessa Atalanta*, &c.,—and I once saw a fine specimen of *V. Antiopa* which had been taken on an empty sugar hogshead, in the town of Bridgwater. I formerly asked the late Mr. House if he had ever seen the common earwig on the wing, and he assured me in the affirmative.—*Id.*

[I can feelingly corroborate Mr. Dale's observation as to the earwigs being attracted by the sugar. Night after night I have found my sugarings covered with earwigs, and nothing else; but I always supposed these insects had crawled up the trunks. I shall be much obliged for more communications on this subject.—*E. N.*]

Appearance of the Locust at Bristol.—I think that Bristol remains still unnumbered among the numerous localities mentioned in the 'Zoologist' as having been visited by the locust during the autumns of 1847 and 1848: it may, therefore, be worth recording that a specimen was brought me on the 19th of October last, which had been captured in Bristol a few days previously: it was much exhausted, and only lived a short time.—*P. H. Vaughan; Redland, Bristol, January 28, 1860.*

Libellula accompanying a Ship at Sea.—"We did not remain long enough at the Mauritius to allow us to collect anything of interest: our vessel picked up (apparently there) three *Libellula*, which remained about us for at least three weeks, hawking, during the sunshine, for flies about the sides of the vessel. I could not succeed in catching one of them."—*Extract of a Letter dated "Peradema, Ceylon, January 14, 1860," from G. H. K. Thwaites, Esq., to W. Spence, Esq.*

Wild Cats in Britain.—In answer to your inquiry (Zool. 2721) whether I believe we have two species of wild *Felis* or not in Britain, I must say I believe not; and ought to have said in my communication (as I had intended) that many, if not the most, of what are said to be wild cats, are nothing more than the domestic cat having become such: the one I mentioned as having been obtained here, and which I called *Felis maniculata*, I believe to be nothing else. To my knowledge there have been three got near this place, which I have examined, and think they were the domestic cat become wild: they all varied considerably in colour: the largest was black and white, and was shot by a friend of mine when out woodcock shooting; but none of them were like the one I have from Wales, which is now mounted, and is in appearance every way a different animal. It was this impression that led me to call that got here *Felis maniculata*, not having seen anything sufficiently strong to overturn the hypothesis of Temminck, that the species discovered by Rüppell in Nubia was the stock from which our domestic species was descended.—*Joseph Duff; Bishop Auckland, March 11, 1860.*

Curious Instinct in a Dog.—About a fortnight since, Henry Tuckett, of Frenchay, was returning home, when he was arrested near the Stapleton Turnpike by the cries of some women, whom two savage and half-drunken fellows were attempting to assault. He immediately went to their assistance, and rescued them, and kindly offered them his protection to Frenchay: they thankfully accepted the offer, but were followed by the ruffians, who threatened and abused them and Mr. Tuckett, and would no doubt, but for that gentleman's firmness, have repeated the assault. Mr. Tuckett had one of them apprehended and punished by the magistrates at Lawford's Gate, but the other escaped. The singular part of the story, however, is, that since that night, a fine large retriever of his neighbour's, Mr. Wadham, has attached itself to Mr. Tuckett, and invariably accompanies him to Bristol and back, at whatever hour of the day or night he may leave, and will not upon those occasions follow any of the family to which it belongs. The dog does not stay at Mr. Tuckett's, nor does it see him leave the village, though, by some mysterious instinct, it ascertains the fact, and overtakes him on the road, often long after he has left. Whatever stay he makes in town, it will stay with him, and remain for hours outside the door of any friend he

has been visiting, steadily awaiting his re-appearance, to conduct him home, always keeping near him, and particularly at night, when the footsteps of any one are heard approaching. It is still more curious that, previous to the assault alluded to, the dog used to growl at Mr. Tuckett, who had once punished it for fighting with a small terrier of his own. It would seem as if the animal was impelled by some unaccountable instinct to defend Mr. T. from a threatened danger.—*Communicated by Dr. Hodgkin.*

Curious Act in a Dog.—Mr. James Reeve, floor-cloth manufacturer, formerly of Little Tichfield Street, about sixty years since had occasion to call at a relation's in the City Road, and from thence to some part of Hoxton, to settle a large account in the way of business. Somewhere near Finsbury Square a dog suddenly fawned about him, which he endeavoured to drive off, but failed in his efforts; when passing a dead wall, a few minutes after, the dog began to growl, and made a sudden stop under a lamp fixed to the wall, and in the shadow he saw a man standing in a very suspicious manner; and a few yards further on, under the next lamp, the dog acted in the same manner, and Mr. Reeve in the gloom saw a second man in the same posture as the first: he did not think much of the occurrence at the time. When he reached Hoxton the party was from home, and he was unable to pay the money: the dog returned with him to near the place where he first saw him, and disappeared. Some weeks after, a man who had occasionally been employed by Mr. Reeve sent an urgent message to him from Newgate, where he was lying under sentence of death for a burglary: when Mr. R. went, this man informed him that the night he went to pay the money himself and a confederate intended to waylay and rob him, but seeing the dog prevented them, as it appeared so ferocious. The dog was a common-looking dark mongrel, about the size of a large terrier.—*Id.*

The supposed new Mammal (Zool. 2676).—I have carefully examined the animal sent by Dr. Morris for my opinion, and I am convinced that it is only a common stoat. It cannot be a young polecat or pine marten which had lost its long hair, because the teeth are well formed, and agree exactly with those of the stoat, and are much smaller than those of a young polecat or pine marten. It has no relation to the otter; and, indeed, differs so little from the usual appearance of the stoat in change of fur, that I am satisfied if my friend Mr. Tomes had had an opportunity of examining the specimen, he would have seen that it had no affinity to the genus *Lutra*. There is no ground whatever for believing it a hybrid.—*Mr. Gray, of the British Museum, in a letter to Professor Bell.*

The supposed new Animal described by Dr. Morris.—As I have hazarded some erroneous opinions on this subject, I now venture a few remarks in vindication of my ignorance. My observations were based on the description given of the animal in a proof sheet forwarded to me by Mr. Newman, and were not at the time intended for publication: however, that gentleman thought the dimensions there given of some of the British Mustelidæ, from fresh specimens, worthy of insertion, and in due time therefore they appeared. In the winter of 1846-7 an unusual number of the stoat occurred in the white or ermine fur, and I procured nearly a dozen, more or less in that state, for the purpose of examining closely the change of fur. Having thus made a tolerably close acquaintance with the species, I do not believe I should have made so great a mistake had an opportunity occurred of inspecting the specimen described as something extraordinary.—*Robert F. Tomes; Welford, Stratford-on-Avon, February 20, 1850.*

The supposed new Mammal.—As to the true nature of the animal, I confess myself at a loss. My impression was, at first looking at it, that it was a young marten; and I still cannot help having some leaning to that opinion: certainly not a stoat; as certainly having no relation to the otter; for I think nothing of the supposed webbed foot. The mark on the throat and the size of the ears are in favour of its being a marten, and its young condition, *shown by your observations as to the immaturity of the teeth*, is somewhat confirmatory of the same solution: but the tail and the general character of the fur do not appear to admit of it. Then comes the question how far hybridism can explain the difficulty. This is extremely rare in *wild Mammalia*; indeed I do not know a well-authenticated instance. Whether any of the asserted cases of female domestic cats impregnated by the true wild cat are true or not, it would be very difficult to prove; and in this case, again, *one of them is not in a wild state*. The subject appears to me to be beset with difficulties, and not one of the hypotheses strikes me as being free from doubt. I am ashamed of so unsatisfactory a reply to your wish for my opinion, but I cannot really come nearer to a decisive judgment on an *isolated fact*, without either experience or analogy to guide.—*Professor Bell, in a letter to Dr. Morris.*

[Three zoologists, whose names I cannot publish without their consent, have given opinions precisely corresponding with Mr. Gray's. If a doubt still exist on this subject, why not institute a rigorous comparison between the bones of the supposed novelty and those of an ordinary stoat?—*Edward Newman*].

Is the Squirrel (Sciurus vulgaris) ever Carnivorous?—In reply to your inquiry about the squirrel, I am decidedly of opinion that it is *not* carnivorous. I related the anecdote to you exactly as I received it from the mouth of a keeper in the employment of an uncompromising preserver of game, at whose hands all other "fowls of the air and creeping things" find but little mercy, and squirrels and stoats are included in the same black list. You may remember my remark that his (the keeper's) statement ought to be received *cum grano salis*. I have since probed the matter to the quick, and submitted the Jack-in-office to a careful cross-examination, the result of which is a perfect conviction on my part that his story was a pure invention of the brain, got up at the moment as a conclusive argument to repel my attempted vindication of his little victims, several of which, recently killed, were lying about the gravel-walks in all stages of decomposition (for the ferret-hutch had been already glutted, and there was no room on the gable end of the barn for another culprit). My expostulations, I grieve to say, have been equally fruitless with master and man. In the extensive and thickly-wooded district to which I refer, the species may survive for many years, in spite of all this persecution. The real offence is the nibbling off the upper shoots of the Scotch fir, during seasons of dearth and scarcity; a plausible *casus belli* is thus established against it, and every other crime, possible and impossible, is laid to its charge. "The wish is father to the thought:" the keeper is sure to have a finger in the pie; he is a ready witness against the accused; and, under such circumstances, a functionary of this description would almost (except for certain legal terrors, and it may be conscientious scruples) rather shoot a child than spare a squirrel. That some of the Rodentia will occasionally indulge in animal food there can be no doubt: the rat is a familiar example; but I firmly believe that the squirrel rarely or never exhibits carnivorous propensities. As to the conduct of animals when kept in confinement, their nature becomes so completely altered by *durance vile* and the ignorance or neglect of their captors, that it can never be considered a fair index

to their habits in a state of nature. If half-a-dozen field mice were put into a cage, and left without food for a couple of days, the weakest would be devoured by the others; and if the cruel experiment were prolonged, the same result would follow, until none survived but the strongest individual of the party. Under nearly similar circumstances, even civilized man himself has become a cannibal! That the squirrel may—during long, dry summers, when the verdure of the woods and on the surface of the earth has been parched by the burning sun, when the dead leaves of the previous year have been all explored over and over again for acorns and beechmast, and not another nut remains—have occasionally been detected in the act of devouring the eggs, or even the unfledged young of a small bird, is just possible; although after much patient observation and diligent inquiry, I am bound to say that I have seen nothing of the sort, nor met with a single well-authenticated instance of the kind. I quite agree with Mr. Waterton in his opinion of the harmlessness of this charming little quadruped. After commenting with just severity on the remarks of a writer who had pronounced the squirrel to be carnivorous, from having seen one partake of meat when in a state of confinement, that accurate and agreeable author records—among several similar instances which had come under his own notice—that of a common fowl devouring flesh. I have myself met with something nearly analogous in the same bird. On the 8th of April, 1847, I was walking with two friends through a farm-yard, in this county, when I observed a large barn-door hen in the act of killing a full-sized frog, by dashing it against the ground, in the same manner as a thrush would perform the operation on a worm or slug: she made several ineffectual attempts to gorge it while yet alive, her appetite being apparently whetted by the interference of an old cock, who was indefatigable in his efforts to dispossess her of the prize, which she on her part endeavoured to baffle, by leading him a difficult chase through hurdles, ladders and waggon-wheels, over an ocean of straw, until I lost sight of her as she attempted to evade her pursuer by “an artful dodge” round the corner of a distant pig-sty. Should we conclude from this that the common fowl is habitually a frog-devourer? Far from it. This is but the exception that proves the rule; and surely it would be equally unjust to condemn the poor squirrel to destruction for an occasional peccadillo. The list of our indigenous quadrupeds is already too restricted to admit of his extermination; and I, for one, earnestly pray that the day may be far distant when the eye of the British naturalist is no longer to be gladdened by the contemplation of his beautiful form and his merry bounds: then indeed will our woods and forests be deprived of one of their greatest ornaments.—*A. E. Knox; Petworth, February 8, 1850.*

Variety of the Common or House Mouse (Mus musculus).—A few months since there were sent to me, from the town of Elgin, in which they were caught, three living mice, which at first view presented so very singular an appearance that it might have induced one to think he had met with at least a new species. On a closer inspection, however, they turned out to be but a variety of the common or house mouse, a variety far rarer, I believe, than the albino or white mice. The whole bodies of these three little creatures were completely naked,—as destitute of hair and as fair and smooth as a child's cheek. There was nothing peculiar about the snout, whiskers, ears, lower half of the legs and tail; all of which had hair of the usual length and colour. They had eyes as bright and dark as in the common variety. One of the three escaped: the other two, after living for some weeks in an old grape vase, died,—apparently

from cold, although surrounded by plenty of dry moss and a variety of food. At least two others were killed in the same house where these were found.—*G. Gordon; Birnie, March, 1850.*

Golden Eagle.—Mr. Argent has just received for preservation, for the Bishop of Oxford, a magnificent specimen of the golden eagle, trapped on Lord Breadalbane's Scotch estates.—*Edward Newman.*

Occurrence of the Osprey (*Falco haliaëtus*) near Colchester.—Mr. Argent has received for preservation a fine specimen of the osprey, shot near Colchester about the middle of January last: it is the property of J. W. Egerton Green, Esq.—*Id.*

Occurrence of the Osprey at Hartlepool.—Dr. Canney, of this place, has just received a fine female specimen of the osprey, taken on board a ship at Hartlepool, in an extremely exhausted state, during the late storm.—*Joseph Duff; Bishop Auckland, February 9, 1850.*

Occurrence of the Peregrine Falcon (*Falco peregrinus*) at Selborne.—On the 22nd of December last I was walking from Empshott towards Selborne with two friends,—both field-ornithologists, and one a remarkably sure one,—when a fine male peregrine falcon crossed the road before us, perhaps about sixty or eighty yards off, as if coming from a fine wooded hill called Nore Hill. You will remember how much Gilbert White was interested about the peregrine which was shot and sent to him by one of the keepers at Wolmer Forest: the place where we saw the peregrine mentioned above was about three miles from that forest.—*Thomas Bell; 17, New Broad Street, February 9, 1850.*

A tame Male Kestrel pairing with a wild Female.—About four years ago my children procured a young kestrel, which, when able to fly, I persuaded them to give its liberty: it never left the place, but became attached to them. In the spring of the following year we missed Billy (as he was christened) for nearly a week, and thought he had been shot; but one morning I observed him soaring about with another of his species, which proved to be a female. They paired and laid several eggs in an old dove-cote, about a hundred yards from the Rectory; but that season being disturbed, as I thought, by some white owls, the eggs were never hatched. The next spring Billy again brought a mate: they again built, and reared a nest of young ones. Last year they did the same; but some mischievous boys took the young ones when just ready to fly. This year Billy has again brought his mate, and they have established themselves in the same quarters. Billy, though in every respect a wild bird as to his habits in the fields, and flying away at the approach of a stranger, is quite at home with my children. He comes every day to the nursery window, and when it is opened will come into the room and perch upon the chairs or table, and sometimes upon the heads of the little ones, who always save a piece of meat for him. His mate will sometimes venture to come within a yard or two of the house, to watch for Billy when he comes out of the room with his meat: she will then give chase, and try to make him drop it, both of them squealing and chattering, to our great amusement. During the time of incubation Billy takes his turn on the nest, and when the young are hatched comes two or three times a day for food. When the

breeding season is over, the female departs, but the male never leaves us; indeed he is so attached to the children, that if we leave home for a time he is seldom seen; but as soon as we return, and he hears the voices of his little friends calling him by name, he comes flying over the fields, squealing with joy to see them again. He is now so well known amongst the feathered tribes of the neighbourhood that they take no notice of him, but will sit upon the same tree with him: even the rooks appear quite friendly. I never saw Billy attempt to catch a bird, but the large black beetles and cockchafers are a favorite food with him in summer.—*Henry R. Crewe; Breadsall Rectory, Derby, March 4, 1850.*

Occurrence of the Goshawk (Falco palumbarius) in Northumberland.—An immature male goshawk was killed in the vicinity of Bellingham, North Tyne, in October last.—*T. J. Bold; 42, Bigg Market, Newcastle-on-Tyne, February 8, 1850.*

Occurrence of the Snowy Owl (Strix nyctea) in Norfolk.—A specimen of the snowy owl was shot at Beeston, near Cromer, on the 22nd of January. It is a male bird, apparently of last year. This is the second instance, within a few years, of this species occurring in the parish of Beeston. The readers of the 'Zoologist' will perhaps also recollect the occurrence of an adult gyrfalcon, not very long since, at the same place.—*J. H. Gurney; Easton, Norfolk, February 1, 1850.*

Occurrence of the Snowy Owl in Norfolk.—Another specimen of the snowy owl has lately occurred in this county, having been killed at St. Faith's about the end of February. It was a male bird, and apparently an older specimen than the one already recorded as having been killed at Beeston. These two specimens, together with another which was seen, but not shot, about six months since, at Swannington, make together three instances—in the course of half a year—of the occurrence of this rare bird in this county.—*Id.; March 13, 1850.*

Tengmalm's Owl (Strix Tengmalmi) killed near Marsden, Durham.—A specimen of the rare Tengmalm's owl was killed on the sea-coast near Marsden, in October, 1848.—*T. J. Bold; February 8, 1850.*

Varieties of the Blackbird (Turdus merula).—In the beginning of December, 1849, a pair of blackbirds were shot in Happyland Garden, near this place; the cock silvery white, without a spot; the hen dirty white, with a few spots of brown on the scapulars.—*Joseph Duff; Bishop Auckland, February, 1850.*

Note on the Fieldfare (Turdus pilaris).—On looking over my notes of last year, I find that I saw a flock of fieldfares as late as the 6th of May.—*William Bond; Frog Island, Leicester, March 15, 1850.*

Occurrence of the Black Redstart (Sylvia Tithys) in Torbay.—A female black redstart was shot, in November last, on Goodrington Sands, by a gentleman who, two years since, procured a male of the same species at the same place.—*Alfred Newton; Thetford, February 2, 1850.*

Occurrence of the Lesser Whitethroat (Sylvia sylvicola) near Carlisle.—My friend Mr. J. Barnes killed a specimen of the lesser whitethroat at Rose Hill, near Carlisle: there was a pair of them in company, evidently breeding, during the summer of 1849. This I believe to be a more northern locality than has been before recorded. I was informed by an eminent ornithologist in Cumberland that its occurrence in that county was a great rarity.—*J. B. Hodgkinson; 12, Preston Street, Carlisle, March, 1850.*

Early Appearance of the Chiff-chaff (Sylvia rufa) in Yorkshire, in 1846.—I have read with much interest some observations on the arrival and departure of migratory birds in Oxfordshire, by the Reverends A. and H. Matthews. On comparing their

list during the last ten years with the one I have kept in Yorkshire for nearly a similar period, I am surprised to find that there is so little difference generally in the times of the arrivals of our migratory birds in the respective counties. In one or two instances, indeed, we seem to have the advantage. In 1846, these gentlemen record the arrival of the chiff-chaff on the 25th of March; it was an early spring: the little migrant was with us as early as the 7th of the month, repeatedly uttering his simple bitone, in Sir Joseph Copley's woods, on the banks of the Don. Is there a possibility of the chiff-chaff ever hibernating so far north? The wood warbler appears to arrive later in Oxfordshire than with us: I generally hear his sibilant notes before the 1st of May: in 1848 he appeared in the woods near the Hall on the 20th of April: this, however, is my earliest record. The tree pipit with us invariably arrives in April: I have not one date so late as May. The spotted flycatcher I have never noticed before the 5th of May.—*Peter Inchbald; Storthes Hall, Huddersfield, March 8, 1850.*

Occurrence of the Fire-crested Regulus (Regulus ignicapillus) near Lewes.—On the 3rd of last month I obtained a specimen of this bird. The person who brought it to me furnished me with the following particulars respecting its capture: while walking beneath some fir-trees overhanging a turnpike-road in this neighbourhood, he saw the bird fly from the trees and settle on a fence: here it ran about in a manner similar to the common wren, until he put out his hand and caught it.—*Charles Potter; Lewes, February 15, 1850.*

Occurrence of the Crested Tit (Parus cristatus) on Sunderland Moor.—In the second week of January a male specimen of the crested tit was shot on Sunderland Moor, and is now in the possession of Mr. Calvert, of that place.—*Joseph Druff; Bishop Auckland, March 11, 1850.*

Occurrence of the Waxwing (Bombycilla garrula) in England.—In the beginning of November, 1849, a fine specimen of the waxwing was killed at Stone Chester, near this place: subsequently to this as many as nineteen of these birds have been got in the southern division of this county, the dates of all I cannot give; one was got near Darlington, and two near Crook in the last week of December; two at Brancepeth, and one at Byers Crem in the second week in January; one at Shildon; one near Walsingham, and two at Bishop Auckland about the 22nd of January; one on Thursday, the 31st, and one on Friday, February 1st, by Mr. Gornal, of this town, who has seen five that he did not get; I have not heard of more than two having been seen together, except once four by Mr. Gornal. I also understand there have been seven got in the neighbourhood of Stockton, two by Mr. T. Green, five by a person of the name of Hunter, who had received them to stuff, and one near Stanley, a few miles to the north-west, on the 6th of February. In the third week of February two more specimens were shot at Spring Gardens, near Bishop Auckland, and a third was seen, but not killed, on the 2nd of March.—*Id.*

Occurrence of the Waxwing near Wisbeach.—A flock of about twenty of these rare and beautiful birds was observed in the immediate vicinity of Wisbeach, at the commencement of January, but from inquiries which I have since made, I cannot learn that any specimen was shot until the 10th, and that was an adult male at Upwell, seven miles from this town. Afterwards eight others were shot, viz., one (a male) in Holbeach Marsh, on the 12th; three at Lynn (one male and two females), on the 13th; one at Terrington, on the 18th; one (a male) at Whittlesea, on the 19th, and two near Manea (females), on the 23rd. Seven of the above were sent

to me for preservation, and each, on dissection, contained from one to three hips.—*J. W. Foster; Curator of the Museum, Wisbeach.*

Occurrence of the Waxwing near Deal.—In the last week of January a Bohemian waxwing was shot near here. In the first and second weeks of January, 1848, eight were shot.—*J. W. Hulke; Deal, February 18, 1850.*

Occurrence of the Waxwing in Norfolk.—A specimen of the waxwing was shot on the 4th or 5th of last month at Tittleshall, near Litcham, in Norfolk; and another was shot a few days later at the same place.—*T. H. Burroughes; Harrow, February 5, 1850.*

Occurrence of the Waxwing at Redcar.—Three specimens of the Bohemian waxwing were shot in the neighbourhood of Guisboro', on or about the 15th of last month (January).—*T. S. Rudd; Redcar, February 5, 1850.*

Occurrence of the Waxwing near Kingsbridge.—I beg to inform you of the occurrence of a male specimen of the Bohemian waxwing; it was shot in the parish of Blackawton, near Kingsbridge, Devon, and is now in my possession.—*H. Nicholls; Kingsbridge, January 3, 1850.*

Occurrence of the Waxwing, &c. in Kent.—Several Bohemian waxwings have been shot in different parts of this county lately; also on or near the coast the water ouzel, the white-tailed eagle, and the black-throated diver.—*F. Plomley, M.D.; Maidstone, Kent, January 18, 1850.*

Occurrence of the Waxwing in Scotland.—A beautiful male of this species was shot on the 22nd instant, in the neighbouring parish of Garvald; hollyberries and a few pieces of quartz were contained in its stomach: another specimen was shot in this parish (Whittingham) about sixteen years ago. Newspaper reports of this year state that flocks have occurred near Aberdeen; although it has been shot in many parts of Scotland, it still ranks as a very rare bird. In the statistical account of the parish of Collington, Edinburghshire, see 'Walker's 'Essays on Natural History,' p. 596, it is stated that the bird "frequents the river-side in winter, though only during the time of severe frost and deep snow:" this notice was probably written about 1791. Dr. Walker was the predecessor of the present incumbent of the Chair of Natural History in Edinburgh; his 'Account of the Highlands and Islands of Scotland' and the work just referred to, are replete with useful information, well worthy of the attention of naturalists, and especially patriotic Scotsmen; a well informed friend assures me, that his MSS. (which ought to have been published by his trustees), should they ever see the light, will give a curious insight into the fauna of Scotland during the period when they were written.—*Archibald Hepburn; Whittingham, January, 1850.*

Occurrence of the Bohemian Waxwing near London.—I have notices of this bird having been killed last week in many localities round London: Harrow-on-the-Hill, Kilburn (seven specimens), Eltham, Rainham, Wimbledon, &c. I have seen these in the flesh, principally through the kindness of Mr. Gardner.—*Edward Newman; January 22, 1850.*

Occurrence of the Waxwing in Cambridgeshire and Norfolk.—Five specimens of the waxwing have been killed at the following places in Cambridgeshire: one at Cambridge, one at Abington, one at Wicken, and one at Oakington; three others have been killed at Lynn, in Norfolk, and a fourth also in that county.—*Frederick Bond; Kingsbury, January 24, 1850.*

Occurrence of the Waxwing at Walthamstow.—Several specimens of the waxwing

have been shot in and near Walthamstow, on the borders of Epping Forest.—*Henry Barclay ; Leyton, Essex.*

Occurrence of the Waxwing at Piddinghoe.—A beautiful specimen of this rare bird was shot at the above place last week. It is uninjured, and is now in the possession of a gentleman in this town.—*J. B. Ellman ; Lewes, February 1, 1850.*

Occurrence of the Waxwing in Norfolk.—Several specimens of the Bohemian waxwing have occurred in Norfolk during the past month. As many as twenty-two have been sent for preservation to the Norwich bird-stuffers.—*J. H. Gurney ; Easton, Norfolk, February 1, 1850.*

Occurrence of the Waxwing near Worcester.—A very good specimen (a young male) of this bird was killed at the village of Ombersley, near here, a few days ago : I believe it is above sixteen years since one of this bird was seen in this county.—*Martin Curlier ; Bevere House, near Worcester, January 24, 1850.*

Occurrence of the Waxwing at Newhaven, Sussex.—Two specimens of this very scarce bird have been obtained at the above place during the last month.—*J. B. Ellman ; Lewes, February 1, 1850.*

Occurrence of the Waxwing at Pevensey, Sussex.—Two specimens of this very scarce bird have been obtained at the above place during the past week.—*Id.*

Occurrence of the Waxwing near Preston.—Several specimens of this rare visitant have been killed in this neighbourhood during the past month. I heard of five being killed on the 27th of January ; there were six of them in company, feeding upon hawthorn-berries, near Freckleton : the fortunate sportsman was Mr. W. Cook. —*James B. Hodgkinson ; 12, Friday Street, Preston.*

Occurrence of the Waxwing near Penzance.—As the late severe frost may possibly have brought several of our rarer British birds to observation, and as it may be interesting to record the different localities where they may have been observed, I beg to say that I saw a specimen of the chatterer which had been killed about a mile westward from this town during the last week : it was in beautiful plumage, with fine wax-like appendages.—*Edward Hearle Rodd ; Penzance, January 21, 1850.*

Occurrence of the Waxwing near Stockton-on-Tees.—Four were shot at Ayton (about ten miles south of Stockton), on January 17th, 1850 ; and during the same week, two at Normanby (seven miles east), one at Wilton (four miles south-west), one at Norton (two miles north), and I have heard of some others having been observed in the neighbourhood, the exact particulars of whose capture I have not been able to ascertain. Though the winter has been severe, the waxwing is the only rare visitant that has occurred ; there was during the storm a considerable number of hoopoes about the Tees' mouth, several of which were shot. —*John Grey ; Stockton-on-Tees, February 8, 1850.*

Occurrence of the Waxwing near Godalming.—A female specimen of the waxwing was shot at Hambledon on the 8th of January, and is now in the possession of F. Yate, Esq., of this town.—*J. D. Salmon ; Godalming, February 9, 1849.*

Occurrence of the Waxwing in Northumberland and Durham.—During the severe weather in January last, we were visited by great numbers of the Bohemian waxwing. Specimens have been killed at Kelso, Belford, Hexham, Minsteracres, Prudhoe, Heddon-on-the-Wall, Eachwick, Ponteland, Jesmond, Carrsill, Ravensworth, Winlaton-Mill, and near Durham. I am informed that several specimens, shot in Westmoreland, have been sent here for preservation.—*T. J. Bold ; 42, Bigg Market, Newcastle-on-Tyne, February 8, 1850.*

Occurrence of the Waxwing near Tunbridge Wells.—A waxwing was shot at Brencley, near this place, on January 8th, 1850.—*Walter W. Reeves; Tunbridge Wells, January, 1850.*

Occurrence of the Waxwing near Hull.—About a dozen specimens of the waxwing chatterer have been obtained in this neighbourhood; three were killed at a single discharge of the gun, at Cottingham, and several more seen. In Holderness they appeared in considerable flocks; the stomach of one which was shot there was filled with the seeds of the privet: they were described as making a chattering noise very much in the manner of the magpie.—*G. Norman; Hull.*

Occurrence of the Waxwing in Norfolk, Suffolk, Cambridgeshire, and Cornwall.—In the third week in January four waxwings were killed at or near Thetford; of these one was killed at Hookham, another at West Harding, and the remaining two in a garden at Thetford; these last were remarkable for their very small size and bright colours; their sex, however, was not remarked: all these were taken in Norfolk. About the same time, two were killed near Bury Saint Edmund's, and one at Barton Mills, in Suffolk. Six specimens which have been killed in Cambridgeshire have come to my knowledge; of these two were bought in the Cambridge market, one was killed at Wilbraham, one at Feulburn, one at Cherry Hinton, and the sixth near Grantchester. I am sorry I do not know any of the dates of these occurrences. I have also heard from a friend at Truro, in Cornwall, that one was killed there about the middle of January, and another at or near Penzance during the frost. I very much regret I cannot give the actual dates of all these captures, as it would be interesting to trace the progress of this flight of birds.—*Alfred Newton; Thetford, February 9, 1860.*

Occurrence of the Waxwing and Black Redstart (Sylvia Tithys) near Liverpool.—I beg to inform you that I saw, in a bird-stuffer's shop, a fresh-killed specimen of the waxwing and black redstart; the waxwing was shot in Cheshire, and the redstart at Aighurth, near Liverpool, feeding along with a small flock of *Montifringilla nivalis*, *Brehm.*—*Henry Johnson; Curator of the Liverpool Royal Institution, January 23, 1849.*

Occurrence of the Waxwing near Lewes.—On the 18th of January I obtained a fine specimen of the waxwing, and another was seen at the same time at Tarring, a hamlet joining that of Itford, from whence I obtained the exotic grosbeak, of which I saw a notice in your last month's journal. I know that several waxwings have been obtained by gentlemen who reside some six or seven miles from this town.—*Charles Potter; Lewes, February 15, 1850.*

Occurrence of the Waxwing near London, &c.—Mr. Argent has received four of these birds to preserve for customers: one shot near Chelmsford, one at Clapton, and two at Walthamstow.—*Edward Newman.*

Occurrence of the Waxwing in various localities in Scotland.—I beg to state that the late flight of this rare and beautiful bird to our Island was well marked over a wide district in the north of Scotland,—from the Atlantic to the German Ocean. It was observed in the Isle of Sky; two were killed at Aldourie, near Lochness, on the 18th of January; four were seen (two of them killed) at Glenfernes, on the river Findhorn, on the 12th; two were killed near Dalvey, a few miles westward of Forres, on the 21st; four were seen at the distillery close by the town of Forres, about the same day; one was killed in a garden in the outskirts of the town of Elgin; a small flock, of which two were killed, was seen near Innes House, five miles eastward of Elgin, about the 14th; and the 'North of Scotland Gazette' mentions

that not less than five were shot near Aberdeen about the 12th of the same month. I have little doubt but future inquiry will show that these strangers were met with, about the commencement and during the continuance of the late severe weather, in many intermediate stations of this lengthened line.—*G. Gordon ; Birnie.*

Occurrence of the Waxwing near Whalley.—A specimen of the waxwing, now in my possession, was shot on the estate of Lady Gardiner, Clark Hill, Whalley, on the 1st of this month.—*W. Naylor ; Church Street, Burnley, February 19, 1850.*

Occurrence of the Waxwing in Leicestershire.—No less than six specimens of the Bohemian waxwing have been shot in our county on the 1st of January last; one was shot in the parish of Stony Stanton, it is now in the possession of Henry Townsend, Esq., of that place; another at Claybrook, and three more near Bagworth. I also saw one that was shot at Belgrave, not distant more than one mile from Leicester; it was stuffed by Mr. Eld, of this town, and from what I can ascertain, all have been shot within a short time of each other during the severe weather we had in January.—*William Bond ; Frog Island, Leicester, March 15, 1850.*

Occurrence of a Pied Black-headed Bunting (Emberiza Schœniclus) in Northumberland.—It is a male in fine plumage, beautifully mottled with white, brown and black, but the white is the predominant colour: it was flying with a flock of chaffinches and buntings at Longhirst, Northumberland.—*Henry Lawson ; Longhirst, February 23, 1850.*

Mules between the Goldfinch (Fringilla carduelis) and Siskin (Fringilla spinus).—Last summer a person in this town obtained two hybrids, between a cock goldfinch and a hen siskin; one of them could scarcely be distinguished from a goldfinch, but this bird died at the first moult: the other is now alive, and has the wings and back of a goldfinch; the rest of the plumage is like that of the siskin; the parent birds are still alive. Is not this a very uncommon occurrence?—*C. Buchanan ; 23, Montpelier Road, Brighton, February 18, 1850.*

The Exotic Grosbeak (Zool. 2699).—This species is not uncommon in the dealers' shops in London; I think the one referred to had escaped from confinement; the fact of its plumage being in good condition says nothing in favour of its being a wild bird, for if they are kept as they should be, they will be as perfect as possible; witness the numerous beautiful specimens in the Regent's Park.—*F. Bond ; Kingsbury, March 9, 1850.*

Occurrence of the Parrot Crossbill (Loxia pityopsittacus) near London.—Through the kindness of Mr. Gardner, I have just seen a fine male specimen of the parrot crossbill, killed yesterday at Harrow-on-the-Hill; of course the bird was in the flesh.—*Edward Newman ; January 22, 1850.*

The Great Spotted Woodpecker shot near Newcastle-on-Tyne.—A great many specimens of the great spotted woodpecker (*Picus major*) were shot in our immediate vicinity during the months of October and November last.—*Thomas John Bold ; 42, Bigg Market, Newcastle-on-Tyne, February 8, 1850.*

Unusual Abundance of the Kingfisher (Alcedo ispida) near Newcastle-on-Tyne.—In the latter part of December and the beginning of January last, great numbers of the common kingfisher visited this neighbourhood. Mr. Pope, game-dealer, of this town, informs me that in the last two weeks of December and the 1st of January, he had more specimens of this bird brought to him than he has had during the whole time that he has been in the business, some sixteen or eighteen years.—*Id.*

Hen Pheasant in Cock's Plumage.—I had sent me last week a very fine hen

pheasant in the plumage of the cock. I have often heard of the change in feather, of course, but do not know whether they have been known to assume the white ring round the back and sides of the neck; this one has it very perfectly marked. Perhaps some of your correspondents can give me some information as to this?—*Martin Currier*; *Beverly House, near Worcester.*

Varieties of the Pheasant (Phasianus Colchicus).—At this moment, Mr. Gornal, of this town, has a pair of pheasants under process of preservation, both of them perfectly white, except that the cock has one coloured feather under the throat.—*Joseph Duff*; *Bishop Auckland.*

Appearance of the Quail (Perdix coturnix) in *January*.—In a farm-yard, about four miles from me, a farmer last week observed, as he thought, a partridge feeding with the sparrows upon the grain; he shot it, and on picking it up the bird proved to be a quail: the bird is in perfect plumage, and bears no marks of having been in captivity.—*Martin Currier*; *Beverly House, near Worcester.*

Occurrence of the Quail (Perdix coturnix) in *January*.—There have been three instances of the occurrence of this bird during the late severe weather. A pair was seen at Parson Drove on the 16th, the ground at the time being covered with snow; one of them, a male bird, was shot; the other escaped. On the 30th another specimen was shot near March, and the following day another was caught alive at Guyhirn. I have also heard of others being taken in the neighbourhood.—*T. W. Foster*; *Curator of the Museum at Wisbeach.*

Occurrence of the Virginian Colin (Perdix Marylandica) near *Tunbridge Wells*.—Since my last communication (Zool. 2700) I have seen another specimen of the Coturnix Marylandica (a male), shot about the same time and place.—*Walter W. Reeves*; *Tunbridge Wells, February 8, 1850.*

Occurrence of the Pratincole (Glareola torquata) in *Northumberland*.—I have just received a specimen of that rare and uncertain visitor, the collared pratincole; it was shot at Bedlington, in Northumberland.—*Joseph Duff*; *Bishop Auckland, February 9, 1850.*

Occurrence of the Crane (Grus cinerea) in *Norfolk*.—A specimen of the crane (*Grus cinerea*) was shot at Martham, in this county, about the end of last December. It appears to be a bird of the year; the sex was not noted.—*J. H. Gurney*; *Easton, Norfolk, March 13, 1850.*

Occurrence of the Bittern (Ardea stellaris) at *Walthamstow*.—In January a bittern was shot in Walthamstow. It was first observed by a gentleman to rise from some cabbages in his garden; he marked it down, and informed a neighbour's gardener, who shot it.—*Henry Barclay*; *Leyton, Essex.*

[I have received numerous other records of the occurrence of the bittern: it has been much more abundant than usual. I have published Mr. Barclay's on account of the propinquity of the locality to the metropolis.—*E. Newman*].

The Snipe (Scolopax gallinago) in *South Lancashire*.—The snipe, as most people know, is a bird living upon suction; it inserts its bill into soft earthy substances to obtain worms, insects, &c. Now, in South Lancashire, there are what are termed "Mosses," large tracts of considerable extent, containing within their compass an immense quantity of pulpy material, composed chiefly of decayed vegetable matter, with bushes of the heath plant growing thereon. Here and there in the wettest part of the Moss grow reeds, bullrushes, various species of coarse grass, and a kind of low stunted willow, just the sort of locality a sportsman would declare to be a "a magnificent

place for a snipe." Two kinds of snipe frequent these Mosses; one usually called the 'full snipe,' and the other the 'jack.' To begin, the full snipe usually make their appearance about the latter end of August, and continue to arrive all through September, and during that month are very wild, keeping together in whisks of thirty or forty, and when one snipe gets up and gives its alarm-note, whisks from all parts of the Moss rise also, much to the discomfort of the sportsman. I recollect very well going one morning in the early part of the season of 1848, with a friend, to shoot snipe on one of these Mosses; it was a warm day, with slight rain, and we were perfectly aware the snipe would be there in great numbers. We reached the Moss and were proceeding cautiously along the edge of it, when a snipe got up, and I fired, but no sooner had the gun sent forth its charge than there arose from all parts of the Moss snipe innumerable; my friend and I computed the number at between two and three hundred. The wildness of the snipe was caused by the mildness of the day, as in cold windy weather they lie close, and get up either singly or in pairs. When a frost takes place the snipe leave the Mosses and take their departure for the streams, brooks, and ditches, as in frosty weather the pulpy matter of which the Mosses are chiefly composed becomes hard and impenetrable to the bill of the snipe. Now for the jack snipe. The jack frequents much the same places as the full snipe, but the jack may be found at certain times and in certain places where you will not meet with the full snipe. The reason of this I cannot tell; both kinds of snipe feed on precisely the same kind of food as far as I can see, and if the one kind find the food to their liking, why is not the other there also? This I leave to people more learned than I am in the philosophy of instinct. The flight of the jack is something similar to that of the common lapwing, but quicker, not the furious zigzag of the full snipe, but that flagging kind of flight which cannot be better described than in the flight of the bird alluded to. The jack is by no means an easy bird to kill, as it flies generally so close along the ground that it puzzles many a first-rate stubble shot. The jack lies very close, and will allow a person to walk nearly over him before he will rise. During the frost of last month I found plenty of jacks, but very few full snipe. On the 22nd of last month I was going through a bushy, wet cover, when one of the beaters put up a snipe of immense size; I think from appearances it must have been the species called the great snipe. The finding the nest of a snipe is rather a rare occurrence, although I am confident many remain all through the summer to breed, as I have flushed them whilst walking on these Mosses.—*J. M. Jones; Montgomery, North Wales, February 16, 1850.*

Variety of the Corn Crake (Crex pratensis).—Mr. Barnes lately killed a variety of the corn crake having beautiful white feathers along the breast and wing-coverts. I have seen a variety, killed by my father many years ago, having the wing perfectly white.—*J. B. Hodgkinson; 12, Preston Street, Carlisle, March, 1850.*

Occurrence of the Pink-footed Goose (Anser brachyrhynchus) and Brent Goose (Anser Brenta) near Wisbeach.—One specimen of the former and several of the latter have been shot in our marshes, in addition to the usual number of gray-lag, bean and bernicle geese, and other wild fowl. In the middle of last month the frost was intense, which, combined with a heavy fall of snow, completely cut off all means of subsistence for our winter visitants, and they were consequently driven to sea, far out of the reach of our gunners, who uttered loud complaints at the scarcity of birds.—*T. W. Foster; Wisbeach, February 18, 1850.*

Occurrence of the Egyptian Goose (Anser Ægyptiacus) in Sussex.—A few weeks since I had the good fortune to obtain a specimen of the Egyptian goose: it was shot

in the neighbourhood of Seaford, Sussex.—*G. Grantham; Barcombe Place, near Lewes, March 15, 1850.*

Occurrence of the Egyptian Goose at Pevensey, Sussex.—A specimen of this rare bird was shot in the marshes last month.—*J. B. Ellman; Lewes, February 1, 1850.*

Occurrence of the Wild Swan (Cygnus ferus) and Bewick's Swan (C. Bewickii) near Wisbeach.—In the middle of the month of December seven swans were observed at the estuary of the Nene, and two were shot at, but being only winged they escaped at sea by swimming at a rapid rate on an ebb tide. The man who shot at them, although in a small boat, was unable to overtake them. The remainder of them still frequented the adjoining marshes, and their numbers were gradually thinned. Some of the birds were in the second year's plumage, but two clean adult specimens—one of which is Bewick's swan, shot on Terrington Marsh, on the 29th ult.—have fallen into my hands.—*T. W. Foster; Museum, Wisbeach, February 18, 1850.*

Occurrence of Wild Swans near Hull.—The late frosty weather brought us a good many unusual visitors from the north. On a shooting excursion on the river Humber, ten days ago, I observed a long string, consisting of eleven wild swans, flying over at a considerable height.—*George Norman; Hull, January, 1850.*

Occurrence of Rare Anatidæ in Sussex.—The past month has been one of unusual severity generally, and in consequence the flocks of wild ducks and geese have been enormous. Hardly a day passed but what specimens of the gray-legged goose, pink-footed goose, brent goose, white-fronted goose, golden-eye, scaup duck, and all the other common species of Anatidæ, were shot in some numbers throughout the whole of the marsh district in Sussex. The red-breasted merganser has been procured in several instances, and also the hooper, and I believe Bewick's swan.—*J. B. Ellman; Lewes, February 1, 1850.*

Occurrence of Rare Anatidæ, &c., near Bishop Auckland.—The very severe weather we have had lately has been the means of bringing into our neighbourhood many of our rare winter visitants, of which the following have either come into my possession or under my own observation, viz., goosander, merganser, red-breasted merganser, smew, golden-eye, long-tailed duck, eider duck, brent geese, red-throated diver (two specimens), crested grebe, Slavonian grebe: several large flocks of geese passed over, but at too great a height to ascertain the species: three spoonbills were also seen passing over this place.—*Joseph Duff; Bishop Auckland, March 11, 1850.*

Occurrence of the Ferruginous Duck (Anas ferruginea) near Redcar.—A specimen of the ferruginous duck was taken in a decoy in Contham Marsh, near the Tees-mouth, on the 17th of January last.—*T. S. Rudd; Redcar, February 5, 1850.*

Description of a Duck shot near Dunbar.—Thinking you might like to have a description of the duck spoken of in my last letter, I forward you the enclosed sketch. The duck was shot near Dunbar, whilst in company with several individuals of Boschas, and may perhaps be only a variety or a hybrid, but offers—especially in its sternum—many well-marked distinctive characters. I have been through the museum at the University, but cannot see anything like it. Female: ova size of mustard seed. Forehead, occiput and nape of neck black, with green reflections: side of face marked with dusky stripes, one from gape passing backwards, another from bill to anterior angle of eye: ear-coverts also dusky: a broad black stripe extending down back of neck: shoulders, back, wing-coverts, tertiaries, primaries and long flank feathers dark brown, with purple and green reflections; secondaries dark, edged with grayish brown: speculum gray, reflecting green: chin, broad collar round base of

neck and inside of wings white: cheek, line from frontal plate extending over the eye, and neck, pale brown, with minute dusky stripes: breast and under tail-coverts yellowish brown, with dark brown horse-shoe-shaped bars: belly and thighs brownish (rusty) black, without distinct markings: upper tail-coverts very dark, with chestnut-brown spots and bars: tertiaries nearly reaching to the end of the primaries: tail, eighteen feathers, extending 2 inches beyond longest primary: legs and feet dark orange: webs and under surface of foot and tarsus black: bill greenish black: nail black: laminae projecting beyond the margin.

Measurements compared with large specimen of Boschas.

	inches.	Boschas. inches.
Total length	24 $\frac{1}{2}$	24 $\frac{1}{2}$
Length of tail.....	3 $\frac{1}{2}$	3 $\frac{1}{2}$
Length of wing (second quill-feather longest)	10	11 $\frac{1}{2}$
Length of bill to rictus	2 $\frac{1}{2}$	2 $\frac{1}{4}$
Length of rictus to back of head	2	
Length of nail to nostril	1 $\frac{1}{2}$	
Length of middle toe.....	2 $\frac{1}{2}$	2
Length of tarsus.....	2	1 $\frac{1}{2}$
Height at rictus	$\frac{1}{2}$	
Width at rictus	$\frac{1}{2}$	
Width near point	$\frac{3}{8}$	

Measurement of Sternum as compared with Boschas.

	inches.	Boschas. inches.
Length of inner surface following curve.....	3 $\frac{1}{2}$	3 $\frac{1}{2}$
Width of ditto at narrowest point	1 $\frac{1}{2}$	1 $\frac{1}{2}$
Width of ditto at widest point	2 $\frac{1}{2}$	1 $\frac{1}{2}$
Length of outer surface following convexity	3 $\frac{1}{2}$	3 $\frac{1}{2}$
Length from point of keel to diaphragm.....	4	3 $\frac{1}{2}$
Length of oval opening.....	1 $\frac{1}{2}$	1 $\frac{1}{2}$

In *Anas Boschas* the keel is $\frac{1}{4}$ th of an inch deeper in its entire course than in the specimen I have described, and the inner surface is more concave.—*Edmund Thomas Higgins; Edinburgh, February 11, 1860.*

Ducks Nesting in Trees.—Mr. Field Nicholson, of Wooton, informs me that two years ago, when fishing near to Thornton Abbey (Barton, Lincolnshire), he saw a wild duck fly out of a large ash tree overgrown with ivy: being surprised at seeing a bird of that species in so singular a situation, he climbed the tree, at the top of which he found a duck's nest full of eggs.—*Edward Peacock, Jun.; Messingham, Kirton Lindsay, March, 1850.*

[Many instances of this habit have come to my knowledge.—*E. N.*]

Occurrence of the Goosander (Mergus Merganser), Red-breasted Merganser (M. serrator), and Smew (M. albellus).—On the 7th of December last a fine adult female of the goosander was shot on Guyhirn Wash; on the 9th, three old specimens of the merganser (a male and two females) were shot on Terrington Marsh; and on the

31st of January, an adult male smew near Ely. The latter specimen is intended for the museum at Ely.—*T. W. Foster ; Wisbeach, March, 1850.*

Occurrence of the Smew (Mergus albellus) in Northamptonshire.—I saw a fine male adult smew on the river Nene, near Stoke, in Northamptonshire, on Saturday, the 5th of January, 1850, which I fired at, and unfortunately missed. I may as well mention that the place above named is more than thirty miles from the sea, and that it is a river of no great size. I was quite near enough to tell what species it was. I believe the smew in adult plumage to be very rare so far inland.—*T. L. Powys ; Harrow-on-the-Hill, March, 1850.*

Occurrence of the Red-breasted Merganser (Mergus Serrator) in the Thames.—I received on the 28th of January, for preservation, two fine specimens (male and female) of the red-breasted merganser: they were shot in the Thames, near Barking, on the Essex coast, nearly three weeks since: the delicate yellow colour usually observable upon the belly of the male has quite faded, and become nearly white: the gentleman who shot them informed me that the yellow was very bright when the bird was just killed.—*Thomas Hall ; 6, City Road, January 31, 1850.*

Occurrence of the Sclavonian Grebe (Podiceps cornutus) at Piddinghoe, Sussex.—An immature specimen of this bird was shot at the above place last week, by a person who also shot the Egyptian goose and peregrine falcon mentioned in a former communication.—*J. B. Ellman ; Lewes, February 1, 1850.*

Occurrence of the Eared Grebe (Podiceps auritus) on Whittlesea Wash.—A beautiful female eared grebe, in full winter dress, was shot on Whittlesea Wash, in the middle of December.—*T. W. Foster ; Wisbeach.*

Occurrence of the Black-throated Diver (Colymbus arcticus) at Chesterfield.—A very fine specimen of the black-throated diver was killed at Chesterfield, in Cambridgeshire, a few days since.—*Frederick Bond ; Kingsbury, Middlesex, January 20, 1850.*

Occurrence of the Black-throated Diver on Barton Pond.—A male specimen of the black-throated diver was killed, a week or two back, on Barton Pond [where situate?], and is now in the possession of the Rev. T. Blofield, of Hoveton.—*T. H. Burroughes ; Harrow, February 5, 1850.*

Occurrence of the Black-throated Diver and the Tippet Grebe (Colymbus urinator) in Northumberland.—A male specimen (young) of the black-throated diver, and a male specimen of the tippet grebe, were killed on Thursday last, at Blyth, Northumberland.—*Robert Lewins ; Morpeth, February 15, 1850.*

Note on the Changes of Plumage periodically incident to the Great Northern, Black-throated and Red-throated Divers.—In the 'Zoologist' (Zool. 2621) there is an important notice by Mr. Rodd, which appears to me satisfactorily to prove the truth of the opinion held by many naturalists, that the great northern diver assumes at the autumnal moult a livery closely resembling that worn by the birds of the year for the first six or eight months of their feathered existence. I think I can offer some additional evidence of this being the case. In the great northern diver the beak is much less developed in birds of the year than in more adult specimens: the perpendicular diameter of the two mandibles, especially of the lower one at its thickest part, being very obviously greater in the older than in the younger specimens; in addition to which, the colour becomes much lighter, or in fact almost leaves the bill in old birds of this species, making in this point also a marked contrast between these and the younger birds. Now, I have met with two specimens of the great northern diver in the cine-

reous dress, which it was obvious by these tokens were not only adult, but really old birds, thus affording another proof that in this species the cinereous plumage is not confined to birds of the year on y, but is reassumed at every succeeding autumnal moult. I have myself but little doubt that the rules of ordinary analogy will also be in time substantiated by further observation with reference to the other two British divers, the black-throated and the red-throated, and that the variations of their plumage will ultimately be found to be liable to a similar law. The period at which the cinereous plumage of the divers is re-exchanged for the more conspicuous variegated dress, is one which it does not appear easy to define with certainty, both from the difference which exists between different individuals, and also between the different species. With regard to the first of these points, my opinion (founded on some degree of personal observation) is, that this change takes place some weeks earlier in adult birds than in birds of the year. As to the second point, I think that this change is accomplished much earlier in the case of the black-throated than of the other species. The black-throated diver having sometimes very nearly attained the full variegated dress by the middle of December. The great northern is, as far as I have observed, the next to change, often commencing in January, but not completing the change till a much later period. The red-throated, I am inclined to think, is still later in its change than the great northern, and according to the account of Audubon, quoted by Yarrell (see 'British Birds,' under red-throated diver), this species on the coast of North America retains the red throat sometimes as late even as the month of February, unless we prefer the alternative of supposing that the specimens which Audubon saw had newly attained the red throat, a supposition which, from all I have been able to see and learn of the bird, seems to me less probable than that of their being specimens which had not yet shed it. I think, however, that this account of Audubon's is the most obscure point which now remains in connexion with this subject, and any elucidation of it, or any further light that could be thrown on the general subject of the changes of plumage in the divers, would I doubt not prove very interesting, both to those ornithologists who may have the opportunity of effecting such investigations, and also to those who may have the pleasure of learning their result. — J. H. Gurney; *Easton, Norfolk, March 14, 1850.*

Occurrence of the Great Northern Diver (Colymbus gracialis) in Torbay.—An immature specimen of the great northern diver was obtained about the middle of last December in Torbay. This bird weighed nine pounds. — *Alfred Newton; Elveden Hall, Thetford, February 1, 1850.*

The Masked Gull (Larus capistratus) in the Mediterranean.—If I were disposed to be captious, I should say, the remarks of your correspondent from Athens respecting the masked gull are somewhat beside the mark. The fact of his seeing the black-headed gull at Gibraltar during the months of February and March, no more disproves my statement that I did not see it at Malaga in April and May, than does his not seeing the masked gull at Gibraltar in those earlier prove that it was not to be seen in considerable numbers at Malaga in those later months. The object of the communication I presume to have been (for I will not suppose the writer intended to call in question either my veracity or my accuracy of observation) to show, not that the masked gull does not occur in the Mediterranean, but that the black-headed gull is to be found in those latitudes. It may be so. I stated only my *impression* on the subject. That impression, however, is deepened by reference to my journal, wherein I was in the habit of noting down each day the different species of birds observed dur-

ing the day, wherever I happened to be ; and it is somewhat remarkable that no mention is made of the black-headed gull having been seen either on the western or on the southern coast of Spain. My further *impression*, therefore, is that Mr. Baikie is mistaken, i. e. that the birds he saw at Gibraltar were masked, and not black-headed gulls. I will give you my reasons for thinking so. Mr. Baikie states that he is "perfectly familiar" with *L. ridibundus*, as, I presume, are most persons who have visited our coasts ; but can he distinguish it from *L. capistratus* on the wing, and in *winter plumage* ? I trow not. The two birds are so much alike that their specific distinction is doubted by some ; and if I entertain no such doubts, yet of this I am sure, that if examples of both species in winter plumage were laid upon the table before me, I should fail to distinguish them by the eye ; I must have recourse to measurement of bill and tarsi, before I could pronounce which was which. Now, Mr. Baikie saw the birds on the wing *only* ; for they would not have allowed him to shoot one at Gibraltar, if his life had depended on his procuring a specimen (my poor dog was forbidden by the zealous authorities to ascend the Rock ; I suppose, because he was reported by the sentry as having amused himself one day with hunting a little grebe), and his observations were made at a time when the birds were in winter plumage. He, therefore, as I opine, mistook the one species for the other — the rarer for that with which he was familiar. He recognised his old acquaintances, as he supposed ; and in truth, if he expected to distinguish one species from the other under such circumstances, his powers of sight must be even more acute than mine were on one occasion supposed to be ; when, on a small bird rising from the ground some thirty or forty yards before me, I cried out "There's another short-toed lark !" (I had seen one for the first time that day) upon which, a gentleman, who happened to be in company, turned to my friends, and with the gravest of faces, with a look of surprise, amounting almost to alarm, asked "What, could Mr. Bury distinguish the *short toe* at that distance ?" Mr. Baikie, therefore, could not at that season of the year distinguish *L. ridibundus* from *L. capistratus*, however near the birds may have flown to him. On the other hand, I made my observations at a time when both species would have assumed their summer dress ; and was struck by the fact, that a bird so rare in England should be so abundant at Malaga. I noted the circumstance at once, and on the spot ; and feel certain I did not, and could not, mistake one species for the other, though I do not possess the extraordinary acuteness of vision the acquaintance above alluded to would give me credit for. I passed a fortnight at Gibraltar during November, 1846, and repeated my visit, which was of equal duration, in February, 1847. No mention is made in my journal of either *L. ridibundus* or *L. capistratus* having been seen by me on either of those occasions, although I have notes on other species of gulls and numerous other birds. Mr. Baikie says "the number of this species (*L. ridibundus*) appeared to increase about the beginning of March." He may be right as to the species, and observed it on its migration ; but he should have known, that the fact of a certain bird having been seen at Gibraltar, by no means proves it to be a native of the Mediterranean. Gibraltar is a sort of *posada* for numerous migrants that are not found to the eastward of the Rock. I believe, therefore, with most of your readers, the matter will rest very nearly where I left it, in my reply to Mr. Strickland's enquiry.—*Charles Bury ; Cheshunt, Herts, February 22, 1850.*

Occurrence of the Glaucous Gull (Larus glaucus) in Norfolk.—Four specimens of the glaucous gull have been taken at Cromer during the past month, two of them in adult plumage, in which state the bird is very rare. One of the latter is now alive in

my possession, and, like other gulls, seems easily reconciled to captivity.—J. H. Gurney; *Easton, Norfolk, February 1, 1850.*

Occurrence of the Fork-tail Petrel (Thalassidroma Leachii) near Torquay.—A fork-tail petrel was picked up on Tor-Abbey sands, in December last, dying from starvation, but on examination it appeared also to have been wounded. For the knowledge of the occurrence of this, as well as several other birds near Torquay, I am indebted to Mr. Burt, of the museum at that place, who has kindly assisted me with all the information in his power.—*Alfred Newton; Blueden Hall, Thetford, January 31, 1850.*

Proceedings of the Linnean Society.

February 5, 1850.—WILLIAM YARRELL, Esq., V.P., in the chair.

A complimentary address to the new President was read, from the Royal Bavarian Botanical Society.

Mr. Gould exhibited and described a new species of *Menura*, an anomalous genus of Australian birds; he proposed naming it *M. Alberti*, in honour of H.R.H. Prince Albert: also a new species of *Homarus* and two new Lepidopterous insects from the same country.

A further portion of Mr. Huxley's paper on *Medusæ* was read.

February 19.—WILLIAM YARRELL, Esq., V.P., in the chair.

Grains of maize, from the tomb of an Peruvian mummy, were exhibited.

Dr. Wallich read a memoir of the late Professor Schreber.

The Secretary read two original letters, addressed by the late Sir James E. Smith to Dr. Dryander.

March 5.—WILLIAM YARRELL, Esq., V.P., in the chair.

The Rev. J. Yates exhibited a cone of *Encephalartos horridus*, from the Chatsworth Conservatory.

Dr. Wallich read a paper by Professor Lehmann, recording the perfection of the seeds of a species of *Cycas*, in the absence of any male or stamiferous individual of the order *Cycadeæ*.

Mr. Newport, F.R.S., read a paper on the habits of *Monodontomerus*, a parasite on a British bee, and described—under the name of *Heteropus ventricosus*—an acarideous parasite on the parasite: he described at great length the habits of this new and very extraordinary creature.—*E. N.*

Proceedings of the Zoological Society.

February 12, 1850.—W. YARRELL, Esq., V.P., in the chair.

Professor Owen read a continuation of his paper "On the Anatomy of the Rhinoceros," in which he described the thoracic viscera and the generative organs in both sexes of that animal.

The Prince of Canino contributed, through the Secretary, an essay "On the Synonymy of the Genus *Eos*," including descriptions of two new species, *E. cyanogenia* and *semilarvata*. This paper was illustrated by two drawings, from the pencil of Dr. H. Schlegel.

Mr. A. Adams, R.N., communicated a "Monograph of the Genus *Anatinella*, *Sow.*," including the descriptions of two new species, viz. *A. dilatata* and *ventricosa*.

Mr. Adams also communicated an "Arrangement of the Stomatellidae," including the characters of a new genus (*Microtis*) and of several new species, viz. *Stomatella castellata*, *articulata*, *monilifera*, *molluccana*, *orbiculata*, *japonica*, *fulgurans*, *sanguinea*, *speciosa*, *coccinea* and *tigrina*, *Stomatia australis*, *angulata*, *decaessata*, *acuminata*, *lirata* and *notata*, *Microtis tuberculata*, *Gerra plumbea*, *strigosa*, *striatula*, *varia*, *pulchella*, *lintricula*, *asperulata*, *nebulosa*, *ornata* and *lineata*.

Mr. Bartlett exhibited the head and horns of a deer, which he believed to be an adult *Cervus leucurus*. They are remarkably fine in form, and much larger than those described in the 'Fauna Boreali-Americana,' which were brought to England by Mr. Douglas.

Mr. Gould exhibited specimens of a new species of *Memura*, which he had previously described at a meeting of the Linnean Society, under the name of *M. Alberti*.

February 26.—W. SPENCE, Esq., in the chair.

Prof. Owen communicated a memoir (No. IV.) "On the Gigantic Wingless Birds of New Zealand." Having in the previous memoirs determined and referred to their genera and species the different bones of the leg, he made those of the foot the subject of the present communication, which was illustrated by the exhibition of an extensive series of remains from both the north and south (or middle) islands of New Zealand,—comprising the entire series of phalanges of one and the same foot of the *Palapteryx robustus*, a gigantic species from Waikawaite,—a similarly complete series of the *Dinornis rheides*,—and series more or less incomplete of the phalanges of the *Dinornis giganteus*, *Palapteryx ingens*, and other genera and species of the singular extinct wingless birds of New Zealand. The characteristics of the different phalanges were minutely detailed, and the different proportions of the toes characteristic of different species, especially of the two most gigantic, viz., the *Dinornis giganteus* of North Island and the *Palapteryx robustus* of the turbary deposits of the Middle Island. The adaptation of the claw-bones for scratching up the soil was obvious from their shape and strength. The generic distinction of *Palapteryx* had previously been indicated by a slight depression on the metatarsus, supposed by the author to be for the articulation of a small back toe, as in the *Apteryx*; and he had since received a specimen of the principal bone of that toe, which was exhibited and described. A nearly entire sternum, a portion of a minute humerus, a cranium of one of the smaller species of *Palapteryx*, and a cranium of one of the smaller species of *Dinornis*, were also exhibited and described. This magnificent series of remains of the great New Zealand birds had been collected chiefly by the late Col. Wakefield, and had been transmitted to the author through the kind interest of J. R. Gowen, Esq., a director of the New Zealand Company.

A paper was read by Mr. Adams "On New Species of *Cyclostrema* and *Separatista*, from the collection of Mr. Cuming."

March 12.—WILLIAM SPENCE, Esq., F.R.S., in the chair.

The Secretary read the first part of a paper, by Prof. E. Forbes, descriptive of the new Mollusca collected by Capt. Kellett and Lieut. Wood during the surveying voyages of H.M.S. Herald and Pandora, chiefly on the West Coast of Central America.

The Secretary also read a paper entitled "First Thoughts on a Physiological Arrangement of Birds," by Mr. Newman; and intended as an introduction to an entire revision and re-classification of this interesting division of the vertebrate animals. The author began by observing that

The systematic arrangement of the Class Aves is more unsettled than that of any other portion of the Animal Kingdom,—a circumstance that may fairly be attributed to our attaching too high a value to characters purely structural or admensural, while we neglect others more intimately connected with reproduction; in a word, to the substitution of physical for physiological characters. In mammals, reptiles and fishes, we have a primary division based entirely on physiology: thus mammals are placental or marsupial; reptiles are oviparous or spawning; fishes are viviparous or spawning; and this primary division of these classes is admitted by all physiologists to be strictly natural. Notwithstanding, however, the purely physiological characters on which these primary divisions depend, it is found that physical characters harmonize with physiological, and that intimate structure in each instance bears out physiological difference. It were not wise altogether to discard structural differences, even in the outset of an inquiry into system, but it is necessary to use them rather as corroborative than as indicative, and, above all, to draw a distinct and permanent line between such as are truly intimate and such as are purely adaptive. It has always appeared to me that one of the chief advantages of an extensive vivarium like that possessed by our Society, is the opportunity it affords for studying animated nature in an animated state, for ascertaining physiological as well as physical characters. If, then, we avail ourselves of the opportunities which are or ought to be thus afforded us, we shall find that in the very outset of life a physiological character of the most obvious kind will divide birds into groups as distinct as are the placental and marsupial mammals, or the cartilaginous and bony fishes. Prior to the extrusion of the egg, observed facts bearing on this subject are so few and so unconnected that they cannot be rendered available as affording evidence on the question to be considered: it is therefore compulsory that our comparisons begin at that moment when the condition of the young becomes patent by the breaking of the shell. Commencing the inquiry at this point, which may safely be regarded as analogous to the birth of a placental animal, we have these obvious grand divisions of the class:—

1. *Hæthogenous Birds*. In these, immediately the shell is broken the chick makes its appearance in a state of adolescence rather than infancy: it is completely clothed, not with such feathers as it afterwards wears, but still with a close, compact and warm covering. It possesses the senses of sight, hearing, smelling, &c., in perfection: it runs with ease and activity, moving from place to place at will: it perfectly understands the signals or sounds uttered by its parent, approaching her with alacrity when invited to partake of food she has discovered, or hiding itself under bushes, grass or stones, when warned of danger,—in either case exhibiting a perfect and immediate appreciation of its parent's meaning: it feeds itself, pecking its food from the surface of the earth or water, and not receiving it from the beak of its parent: although entering on life in this advanced state, it grows very slowly, and is long in arriving at

maturity. When full grown it uses its feet rather than its wings; it trusts much to its legs for means of escape: when it flies, it moves through the air by a series of rapid, powerful, laboured strokes of the wing, and invariably takes the earliest opportunity of settling on the land or water, not on trees; it never takes wing for recreation or food, but simply as a means of moving from place to place: it is polygamous in its habits, the number of females predominating over the males: the males are pugnacious; they accompany the females only until incubation has commenced, and abandon the duties of incubation and the care of the young solely to the females: the females make little or no nest, a depression scratched on the surface of the soil generally sufficing: the eggs are large in comparison to the size of the bird: neither sex sings or attempts to imitate the voice of men or animals. Birds included in this division approach more nearly to mammals than do those which it excludes; for instance, the habitual use of land or water for progression, the swiftness of foot, the strength and muscular development of the legs, the polygamous habits, the want of the extraordinary instinct of nest-making, are characters which—while they seem to degrade these birds as birds—certainly raise them in the list of animals, because they are thus brought nearer those animals which suckle their young, and which are always placed at the head of the animal kingdom. In an economical point of view, and considered in reference to man, the flesh of these birds is wholesome, nutritious, and is generally considered highly palatable. The division comprises the following groups, in each of which partial exceptions to one or other of these general characters occur:—

1. Gallinæ, or the Poultry order.
2. Brevipennes (*Cuvier*), or the Ostriches.
3. Pressirostres (*Cuvier*), or the Plovers.
4. Longirostres (*Cuvier*), or the Snipes.
5. Macroductyli (*Cuvier*), or the Rails.
6. Plongeurs (*Cuvier*), or the Divers.
7. Lamellirostres (*Cuvier*), or the Ducks.

2. *Gymnogenous Birds*. In these, when the shell is broken the chick makes its appearance in a state of helpless infancy. It is naked, blind, and incapable of locomotion: it cannot distinguish its parent by means of its senses: it gapes for food, but does not distinguish between proper food offered by its parent and a stick or a finger held over it: it cannot feed itself, and would die were not food placed in its mouth: it rapidly attains its full size, often before leaving the nest. When full grown it uses its wings rather than its feet; it flies with a succession of deliberate and easy strokes: it takes wing for recreation and for food, and not merely for the purpose of moving from place to place: it is strictly monogamous, the sexes being equal in number: males share with females the cares of incubation and feeding the young, until these are able to shift for themselves. Birds possessing these characters build elaborate nests in trees, and perch in trees rather than on the ground: many of them sing melodiously; others imitate with wonderful facility the voice of man or of animals. As an economical character in connexion with man, their flesh is generally bitter, often offensive and disgusting: hence man has seldom domesticated them for purposes of food. These are birds *par excellence*: they possess in perfection the essential characters of birds: in the habitual use of air for progression and of trees for resting, in the want of abilities for terrestrial progression, in strength and bulk of pectoral muscle, in monogamous habits, in the fabrication of nests, in power

of song, they are raised as birds but degraded as animals, since in all these characters they recede from those animals which suckle their young. The division comprises the following groups, in each of which exceptions to one or other of the general characters occur:—

1. Totipalmes (*Cuvier*), or the Pelicans.
2. Longipennes (*Cuvier*), or the Gulls.
3. Accipitres, or the Birds of Prey.
4. Cultriostres (*Cuvier*), or the Herons.
5. Passeres, or the Sparrow order.
6. Grimpeurs (*Cuvier*), or the Climbing Birds.
7. Columbæ, or the Pigeons.

Of the fourteen groups thus indicated, three appear to the author to require careful revision: these are the Longirostres, the Passeres, and the Grimpeurs or climbing birds, each of which seems to contain genera associated with the rest by admensural rather than physiological characters. It will be seen that two of the divisions, hitherto universally accepted,—the Grallæ and Anseres,—are now broken up; but a moment's consideration will show that the length of leg in the one and the webbed feet in the other are merely admensural or structural characters, and occur also in the secretary falcon and the puzzling flamingo.*

Mr. L. Reeve read an account of *Lymnæa Hookeri*, a new fresh-water mollusk, which he had just received from Dr. Hooker. It was collected by that gentleman during his recent excursion into Thibet, on the north side of the Sikkim Himalaya, at an elevation of 18,000 feet. This new species of fresh-water mollusk belongs to the same type as our well-known *Lymnæa peregra*, and affords an interesting addition to the evidence which has been in part collected touching the wide geographical distribution of corresponding forms of plants and animals over those parts of Europe and Asia where there are no extensive mountain barriers. The European *Lymnæa stagnalis* has been collected as far east as Afghanistan, and the typical form of *L. peregra* is very characteristic in this species from Thibet. South of the Himalaya range, where Dr. Hooker reckons the snow-line to be 5000 feet lower than it is on the north side, and 3000 feet lower than the locality of this species, the *Lymnææ* are of quite a different type; more especially in the plains of Bengal, where the shell, owing to its being formed in so much warmer a temperature, is of stouter growth, and characterized by some design of colouring. The European types of *Lymnæa*, ranging over Russia and Siberia, appear abundantly in the stagnant waters of North America, and some are identical in species. *Lymnæa elodes* of Say, inhabiting Pennsylvania, is doubtless the same species as the European *Lymnæa palustris*; *L. truncatula* of the same author appears to be identical with *L. desidiosa*; and *L. peregra* represented by *L. Hookeri*, in Thibet, is represented in Pennsylvania by Say's *L. catascopium*.

The last paper read was by Mr. A. Adams, "On the Animal of *Liotia*, and on some new Species of that Genus, and of *Delphinula*."—*D. W. M.*

* I shall feel extremely obliged to any reader of the 'Zoologist' who will supply information respecting the young of any bird not universally known. The *Cariama* (*Microdactylus*), the trumpeter (*Psophia*), and the genera *Palamedea* and *Chauna*, appear strangely placed at present, although I do not doubt that their admensural and adaptive characters justify their present position in systems dependent on such characters. Can any correspondent supply physiological facts respecting them?—*E. N.*

Proceedings of the Entomological Society.

March 4, 1850.—G. R. WATERHOUSE, Esq., President, in the chair.

The following donations were announced, and thanks ordered to be given to the several donors: A bound copy of Mr. H. Doubleday's 'Synonymic List of British Lepidoptera,' with written notes by Mr. Stainton of the several dates of publication on each page; 'Berichte des Lepidopterologischen Tauschvereins,' Jena, 1842-7; 'Annals and Magazine of Natural History,' February, 1850; all presented by Mr. H. T. Stainton. 'Entomologische Zeitung,' August, September and October, 1849; by the Entomological Society of Stettin. 'Transactions of the Linnean Society,' 1847-8, pp. 341-401, and 1848, pp. 1-48; 'Charter and By-laws of the Linnean Society;' 'List of Members of the Linnean Society, 1849;' all presented by the Linnean Society. 'Leeds Philosophical and Literary Society's Annual Reports,' 1847-8 and 1848-9; by the Society. A box of insects, from G. Dalton, Esq., of George Town, Demerara.

The following gentlemen were balloted for, and elected subscribers: Joseph S. Baly and James Shepherd, Esqrs.

Mr. Bond exhibited a portion of the stem of a young ash tree, from near Whitlessford, Cambridgeshire, covered with the pupa-cases of a *Galeruca*?, each being enclosed in the shrivelled spiny skin of the larva; which had a longitudinal slit down the back, after the manner of *Tiresias serra*.

Mr. Bond also exhibited some silken production, like felt, supposed to be formed by the larvæ of *Galleria colonella*, which he had found between two planks of wood.

Mr. Wilkinson exhibited some cocoons of *Plutella harpella*, found in crevices of the bark of a lime tree. Mr. Bond stated that he had found the larvæ of this insect on roses and dogwood: it had been reported to feed on the honeysuckle only.

Mr. S. Stevens exhibited specimens of *Agrotis suffusa* and *saucia* from Venezuela, identical with our British species; and a living specimen of *Ceropacha flavicornis* which he had taken the preceding day.

Mr. H. T. Stainton exhibited some specimens of Micro-Lepidoptera which he had recently bred from leaves gathered the preceding autumn, viz., *Lithocolletis Pomifoliella* from hawthorn, and *L. Viminiella* and *Salicicolella* from willow; also one of *Gracilaria auroguttella*, from a cone formed by the larva on a leaf of *Hypericum pulchrum*.

Mr. Stainton also exhibited a fine series of *Cecophora senescens*, taken by Mr. Douglas, at Mickleham, in June; and six new species of British Tineidæ, of which he read the following brief descriptions:—

Micropteryx mansuetella, Z. "Similar to, and size of, *M. Calthella*, black-headed, with faint pale fasciæ on the anterior wings. Near Glogau, in an alder-brake, at the same time as *Calthella*, on the bloom of *Sorbus Aucuparia*, in plenty; more rarely on *Spiræa Ulmaria* and reed-blossoms." (Schlesisch. Tauschbericht, 1844, p. 16). This species has some resemblance to *Calthella*, but has on the anterior wings some faint indications of purple fasciæ, as in *rubrifasciella*: from both these species it is readily distinguished by its deep black (blue-black) head. Two specimens taken by Mr. Douglas; locality unknown.

Echmia Stanneella, F.-v.-R. (p. 248). "Rather smaller than *Æ. metallica*, of a pale silvery gray, inclining to a yellowish colour, very glossy: the duller posterior wings have besides a very faint violet tint. Before the anal angle of the anterior

wings is a whitish spot, but it is so lost in the pale ground colour that it only becomes perceptible when the sun shines on it." A single specimen taken by Mr. Douglas, in company with sericiella, May 4, 1849, at Coomb Wood.

Myeloides Artemisiella, Steph. MSS. Not closely allied to any species I am acquainted with. Exp. alar. 7—9 lines. Head, thorax and anterior wings pale dirty ochreous, the latter with a paler sinuous hinder fascia, followed by a dark cloud on the costa, and preceded by a similar dark cloud a little removed from the costa, which is continued as a dark streak along the middle of the wing to the base: near the costa, a little before the hinder fascia, is a black spot; and a row of dark spots on the hinder margin: posterior wings pale cinereous. This species has been bred by Mr. Simmons from larvæ, feeding within the stems of *Artemisia campestris*.

Bucculatrix cristatella, F.-v.-R. A single specimen, the locality of which is unknown, is in Mr. Douglas's collection. A note of the distinctive characters of this species appears in the Society's Transactions, vol. v. p. 128.

Gracilaria? *Ocnorostomella*. Exp. alar. 4—5 lines. Last joint of palpi stout and not pointed: head, thorax, antennæ and anterior wings concolorous, gray, sometimes with a slight ochreous tinge: the wings are entirely destitute of markings, which readily distinguishes it from any known *Gracilaria*, whilst the longer palpi immediately separate it from *Ocnorostoma*; and the smooth head, long posterior legs, and long cilia at the anal angle of the anterior wings, at once remove it from *Argyresthia*. I exhibited an imperfect specimen of this species to the Society in November last, as *Argyresthia Amiantella*?, imagining the hairs on the crown of the head to have been rubbed off: the sight of several fine specimens, taken by Mr. Douglas, at Mickleham, in June, 1848, has convinced me that it is not *Amiantella*, and not even an *Argyresthia*; but from the thickness of the last joint of the palpi it ill accords with any known *Gracilaria*.

Crambus uliginosellus, Z. in litt. Distinguished from *C. pascuellus*, with which it has hitherto been confounded, by its shorter and less pointed anterior wings, the white streak on which is less gradually pointed; the posterior wings are whiter, and the palpi and thorax are likewise whiter. One specimen taken at Lewisham, at light, June 21st, 1848.

Mr. Westwood exhibited a specimen of *Ophion undulatum*, taken in this country.
—J. W. D.

Proceedings of the Microscopical Society of London.

March 20, 1850.—Dr. ARTHUR FARRE, President, in the chair.

J. S. Ralph, Esq., H. Taylor, Esq., and J. Dennis, Esq., were balloted for and duly elected members of the Society.

A paper, by the President, entitled "An Account of the Dissection of a Human Embryo of about the fourth week of Gestation, with some Observations on the Early Development of the Human Heart," was read. After some preliminary observations, Dr. Farre stated, that the embryo forming the subject of the paper, was expelled by abortion, about three days before the meeting; and, although no precise data were afforded as to the period of the commencement of pregnancy, the condition of the embryo rendered it most probable to have been of the fourth week of utero-gestation.

The entire ovum weighed 6 drachms, and measured 2 inches in length, and $1\frac{1}{2}$ inch in its shorter diameter; all the membranes were entire and perfectly distinct from each other. The embryo itself measured only 4 lines in length, and notwithstanding the extremely early period of development, the lineaments of the future being could still be distinctly traced. The head, trunk, anterior and posterior extremities, and some of the viscera being clearly distinguished. The head bears a less proportion to the trunk than is observed in the second month of gestation. The three masses of nervous matter, constituting the three pairs of ganglia for the corresponding sensual organs of smell, sight and hearing, are of nearly equal size. The division between these three pairs of ganglia, the foundation of the future brain, are here very well seen on viewing the object by transmitted light. The closest examination of the surface fails in detecting any signs of organs of sense, but a very careful examination by transmitted light, with a good lens, discovers the eye and ear in process of formation, being the earliest indication of these organs ever seen by Dr. Farre; and although no external signs of these organs can be perceived, the appearance of a slightly opaque, but well-marked circle, with a minute point in its centre on either side of the head, being the rudiments of the eyes, and another pair of minute bodies representing the internal ears are clearly distinguishable, although there exists no outward indication of their presence; and thus it is seen that the head, at that early period, consists of three primitive pairs of cerebral ganglia, arranged in a triangular form, with traces of the organs of vision and hearing, the whole being invested in a soft, white integument. Immediately below the head, the body forms a gently curved line in which, by transmitted light, parallel lines at regular short intervals are seen, indicating the future vertebral column and its divisions, which are as yet equal throughout its whole length, which line, after curving somewhat abruptly forward at its extremity, ends in a narrow point or tail. On either side of the trunk are minute projections, indicating the future extremities: the anterior are more developed than the posterior pair, and are about one-third of a line in length; the latter are situated closely on either side of the pointed extremity of the trunk, and are thus rendered less conspicuous than the upper pair. The whole anterior part of the body is perfectly open, from the head to the point of origin of the umbilical vessels. The mouth and nose are not as yet formed, but indications of the commencing formation of the naso-buccal fissure, which itself is again transformed into those organs, are present. The only viscera which can be discovered, are a small mass on the right side, indicating the future liver; and on the left side, at the same height, a curved vessel or hollow organ, divided into three parts, indicating the future heart. With the exception of the organs just mentioned, no others appear to be as yet formed; slight traces which may be indications of the primordial kidneys, &c., are, however, visible. Immediately above the curved extremity of the trunk, the minute umbilical cord is seen, blending itself with the chorion and surrounded by the amnion, but the course of the vessels cannot be traced. No indications of the presence either of an umbilical vesicle or of an allantois can be perceived in this embryo. In referring again to the heart, Dr. Farre described it as presenting the appearance of an elongated vessel curved upon itself, and exhibiting three divisions or chambers, representing the single auricle, ventricle, and bulbus arteriosus, which compose the heart of the lowest class of vertebrate animals or that of fishes; and, in order to carry out the analogy, two drawings of the heart in the human fœtus in successive stages of development, the one at the beginning and the other at the end of the second month, were exhibited, the first representing it as composed of two auricles and but one ventricle, thus symbolizing the heart of vertebrate animals next in advance of fishes, viz., reptiles.

The second showing still further advance, there being now two auricles, thus assuming the permanent character in the higher classes of animals.

A second paper, by George Shadbolt, Esq., being "A Short Description of M. Nachet's Prisms for the Oblique Illumination of Transparent Objects on the Stage of the Microscope, with formulae for their construction, and observations on their use," was also read. In this paper, the author fully described the construction and use of this valuable addition to the microscope, and gave a mathematical demonstration of the mode of its action, and of the best form for producing the most perfect illumination.—J. W.

Tyneside Naturalists' Field Club.

The fourth anniversary meeting of the club was held on Friday, March 1st, in the committee-room of the Literary and Philosophical Society.

The retiring president, Mr. Alder, read an address, taking a review of the proceedings of the club, and of the discoveries made in Natural History during the past year.

Messrs. Hardy and Bold presented the second part of their valuable catalogue of the insects of Northumberland and Durham.

The following gentlemen were elected office-bearers for the ensuing year:—President: Dennis Embleton, M.D. Vice-Presidents: Mr. William Kell, Mr. John Thompson, and the Rev. E. Cooper Abbes, B.A. Treasurer: Mr. Thomas Burnet. Secretary: John Storey, F.B.S.E. Committee: Mr. E. C. Atkinson, Mr. Ralph Carr, Mr. Joshua Alder, Mr. Albany Hancock, Mr. George Wailes, Mr. Richard Howse, Mr. T. J. Bold, Mr. R. T. Green, Rev. J. F. Bigge, M.A., Mr. J. H. Fryer, Mr. D. Oliver, jun., and Mr. E. P. Thompson.

The places for the field-meetings were fixed as under: Stanley Burn, Staward Peel, Holy Island, the Northumberland Lakes, Fourstones, Wark, and Hartlepool.

Mr. John Hare, Newcastle; Mr. E. C. Robson and Mr. Joseph Spencer, Sunderland; Mr. George Armstrong, Fawdon; the Rev. George Hunt Smytten, Charlton Hall, Eglington; and the Rev. J. E. Leefe, Creswell, were elected members.

The Manchester Natural-History Society.

Report of the Council of the Manchester Natural-History Society to the General Meeting, held on January 16th, 1850.

"It is gratifying to the council to witness the increasing attention to Natural History which is now displayed, especially by the young. Amongst those, too, who have hitherto had but little opportunity of cultivating knowledge of this kind, the facilities offered by the Society seem to be greatly appreciated. During the past year, upwards of 25,000 persons in number have visited the museum; and, of these, a very large proportion belong to the working classes. The liberal manner in which these are admitted, during the holidays and on Saturdays, is most fully estimated by them; and those habits of quiet and rational enjoyment upon which their own happiness and that of society at large so very much depend, are evidently on the increase. Notwithstanding the frequent crowding of the rooms on these occasions, no instances of misconduct have ever occurred.

"Many come hither from all parts of the surrounding districts, and show—not only

by successive visits, but in some instances by presents of objects which have fallen in their way, and to which their attention has been directed by what is here presented—that opportunity only is wanted to acquire new tastes, and with these, new and improved habits. And without mentioning, in a more particular manner, the well-known fact, that this district can boast of accomplished botanists, even amongst those who are occupied in toilsome employments and furnished but with slender means, it can be stated further, that, in the various branches of Natural History, we can instance many well-informed and scientific observers and students, in this town and neighbourhood. And these are seen not only amongst the more educated, but even amongst those whose avocations have permitted such studies, only in the brief intervals of daily and of manual labour. There is perhaps no provincial institution which exhibits so many objects calculated to interest the attention and to occupy the memory, and so capable of leading human beings to high and worthy aspirations. They not only, indeed, gratify the eye and present an enduring fund of innocent amusement, but offer inexhaustible resources of valuable instruction. They tend to increase the mental cultivation, and to humanise the manners and ideas, whilst, at the same time, they cannot fail to increase and confirm a reverence for the infinite wisdom, and power, and benevolence of the Deity.

“Yet, although so much has been already accomplished by the opportunities thus afforded, there still remains a boundless field of investigation, ever open and ever in-reaching to the extending range of vision and of thought.

“Without, however, entering further into those higher considerations which so naturally spring from such a subject, it is sufficient to say that this institution admits of, and now requires, a considerable extension, for the mere purpose only of receiving the large number of valuable specimens constantly presented from all parts of the world. These will still further increase its utility and attraction; but at present the council have to regret that many rare and beautiful specimens, especially in ornithology, now in its possession, cannot be arranged and displayed for want of room.

“Under these circumstances, the enlargement of the building has become absolutely necessary; but the council, unwilling to lessen the respectability and usefulness of the Society by borrowing money, confidently rely upon the assistance of the members, and a more extended public support, in order to effect this purpose. The land behind the hall having fortunately been secured to the Society, there is space enough for two wings, each of which, it is calculated, would cost about £1,200.

“Considering this object as one which would contribute powerfully to the general good, and in which all, whether employers or employed—whether in Manchester itself or in the surrounding districts—must feel an interest, the council earnestly make a public appeal, and ask for the means of carrying out this plan, either wholly or in part.

“In conclusion, the council have great pleasure in acknowledging the continued kindness of our excellent patron, the Right Honourable the Earl of Derby, and the liberal donations of so many gentlemen to whose kind consideration the Society is so much indebted. These gentlemen, whether at home or abroad, have not forgotten the interests of science. Amongst others, Robert Hyde Greg, Esq., of Noroliff, and his son, Robert Philips Greg, Esq., have presented 157 fossils and 110 mineral specimens, many of them very rare. Edward Charles Buxton, Esq., has presented 410 crag fossils, and David Sannat Price, Esq., of Batavia, has given numerous articles from Java.

The Tinctorist's Calendar for April.—This month is generally very trying to the patience of the eager collector, as the first setting in of warm weather immediately produces a number of these tiny gems, and that warm weather rarely comes before the end of the month, though in forward seasons it will sometimes—as in 1848—appear much sooner. *Exapete Salicella* should now be looked for in earnest by those who want it, or its season will be past. *Chimabacche Fagella* needs no looking for: the dark varieties are, however, much scarcer than the pale ones. *Semioscopis Avelanella* may perhaps yet be found among birches, and *Steinkellneriana* should now be no rarity in blackthorn bushes. The cases of *Talæporia pseudo-bombycella* and *inconspicuellæ* will now be found on fences. *Tinea masculella* and *Zinckenii* should appear before the close of this month: the latter is a birch-feeder. *Tinea comptella* and *cerasiella* may also be looked for when the first warm weather appears. The season for the early species of *Micropteryx* is now nearly at an end. The blooming shallows should be visited by day in search of *Adela cuprella*. Juniper bushes should be examined in the hope of finding the larva of *Ypsolophus Juniperellus*, though hitherto this species has not been detected in this country. *Cecophora incongruella* appears about this time on moors in the North. *Hyponomeuta viginti-punctata* must be looked for where the *Sedum Telephium* grows. Many of the species of *Depressaria*, having hibernated, will now be met with. *Roeslerstammia pygmæana* will now appear, and is not very scarce in the South of England. The larvæ of many species of *Coleophora* may now be met with, and the following plants should be diligently examined:—*Calluna vulgaris*, for *pyrrhulipennella*; *Ulex Europæus*, the blossom, for *albicosta*; roses, for *lusciniæpennella*; *Ballota nigra*, for *lineolea* and *ochripennella*; * *Artemisia campestris*, for *vibicigerella* and *ditella*; *Coronilla varia*, for *oriolella* and *Coronilla*; *Cytisus laburnum*, for *serenella*; *Onobrychis* (Saint-foin) for *Onobrychiella*; *Anchusa officinalis*, for *Onosmella*; and larvæ will be found on *Glechoma hederacea* and *Stachys sylvatica*, but the species they produce are not yet known. Clover-leaves should be carefully examined for the chance of detecting some of the larvæ of *Metallosetia*, none of which are at present known. *Gracilaria stigmatella* will be found among shallows; and near Warrington, among fir-trees, there occurs a yet unnamed species of this genus, which hitherto I had confounded with *elongella*: *auroguttella*, which I have now bred from *Hypericum pulchrum*, escapes from the pupa in this month and the following. *Elachista testaceella* may be observed in rather wasted condition; and *Epilobiella* also appears to hibernate, as does *decorella*: many of the smaller species of this genus—as *nigrella*, *pulchella*, *obscorella*, *rufocinerea*—appear with the first warm weather. *Phyllocnistis suffusella* and *saligna* must be sought for on poplars and willows respectively. *Nepticula atricapitella*, *ruficapitella* and *aurella* will be found singly after the setting in of the warm weather, and *gratiosella* gregariously flying round hawthorn twigs. Nearly all the species of *Lithocolletis* are to be expected on the first appearance of warm weather, having passed the winter in the pupa state within the outicle of dead leaves.—*H. T. Stainton*; *Mountfield, Lewisham, March 15, 1850.*

* Those in italics are not yet known as British species.

Toad immured in a Wall.—^s 1809. On opening a gap in a wall at Bamborough, [Northumberland], for the passage of carts, a toad, which had been incarcerated in the centre of a wall, was found alive, and set at liberty. A mason, named George Wilson, when building this wall, sixteen years before, had wantonly immured the animal in a close cavity formed of lime and stone, just sufficient to contain it, and which he plastered so closely as seemingly to prevent the admission of air. When discovered, it seemed at first, as must naturally be supposed, in a very torpid state; but it soon recovered animation and activity, and, as if sensible of the blessings of freedom, made its way to a collection of stones, and disappeared."—*Richardson's 'Borderer's Table Book,'* iii. 92.

Curious Fact in the History of a Salamander (Salamandra terrestris).—Whilst staying at Dresden for a few days, last year, in the month of July, we took an excursion to Thorant, a picturesque little village and watering-place, a few miles distant. It was a splendid evening, after a very showery morning. Whilst walking through a wood I found two salamanders, which I took back with me to Dresden, and put them in a small box, which I procured for the purpose. We went out for a three days' excursion into Saxony and Switzerland, leaving them on the window-sill. On our return I found one of them dead (from the box having been exposed to the heat of the sun), and the other nearly so: it, however, soon revived on being sprinkled with water, and it was our *compagnon de voyage* till our return home, where I kept it for some months in a glass fish-bowl, with some mould and moss, which was kept slightly moist. My gardener used occasionally to give it a worm, though it seemed to thrive just as well without being fed. I presented it to the Zoological Gardens in January: a few days afterwards it produced some young ones, and in the course of a week or so it had brought forth thirty-two, most of which soon died, but six of them survived nearly a fortnight.—*Samuel Gurney, Jun.; Carshalton, March 26, 1850.*

[See some curious remarks on the salamander, Zool. 1033.—*E. Newman.*]

Occurrence of the Boar Fish (Zeus Aper) in the Bay of Portland.—A specimen of the boar fish was taken in the west bay of Portland, by the trawl, a day or two since, alive. I have this day seen it, not yet dry: the fishermen had not seen one before. It is now in the hands of Mr. Damon, naturalist, of this place, by whom it will be consigned to the British Museum. Length 6 inches.—*William Thompson; Weymouth, March 30, 1850.*

*Extracts from the Correspondence of Mr. H. W. Bates, now forming
Entomological Collections in South America.*

(Continued from page 2719).

"Parà, June 15, 1848 [?].

"The country is quite level for hundreds of miles: the river opposite the city is studded with lovely wooded islands, leaving a free

space of about four miles wide ; beyond the islands it has twenty miles more width. All around the city are marshes, flooded at high water, and choked up with the most glorious vegetation. About twelve miles from the city the forest commences, which is so dense and endless that none but Indians and runaway slaves dare penetrate far into it. Notwithstanding the marshes and sultry heat, the climate is undoubtedly one of the finest and most healthy in the world. The people of the country are idle and luxurious. The rich earth and river produce the necessities of life almost spontaneously ; scores of delicious fruits grow wild in the woods. A few yards of ground round the cottage yield roots for "farinha" (a kind of wholesome flour), oranges, bananas, coffee, &c. : the ground is everywhere strewn with fallen fruit. The city covers about as much space as Leicester, and has about 20,000 inhabitants : almost every day has been a holiday with them since I landed, being a catholic country ; troops of people go about in procession with bands of music ; rockets, fireworks, drums, church-bells, &c., are going constantly. The people are of all colours, from the jet-black of the negro to the white of the European. Children run about naked until about eight years of age ; and very little clothing is worn by adults, except European tradesmen, who are so particular with their dress-coats, polished boots, hats, &c., as to be quite a nuisance.

"But as to the productions of the country : it teems with all the richest creatures in Nature : the gardens are overrun with magnificent creeping plants to the tops of the highest trees ; tall palm trees shoot up their arrow-like stems fifty to eighty feet high, crowned with a magnificent head of leaves six to fifteen feet long. Birds are by thousands ; humming-birds are vibrating their gilded plumes at the blossoms of the trees overhanging our house ; parroquets are chattering everywhere, and others of beautiful plumage cross our path at every step. Insects are in vast variety. Lizards are most numerous in the centre of the city ; they are crawling over the walls of houses, and they scamper over the pathways at every step we take. The ants are the greatest nuisance ; I have hundreds of a monstrous kind, running about the wall of the verandah at my elbow, at the present moment ; they seize hold of everything eatable, and consume it in a twinkling,—pieces of meat, &c., are seen moving, as if by magic, over the table, carried off by them. But I might proceed in this style through a dozen sheets and not give you the faintest idea of the everywhere-present, the roving and active life in this wonderful country."

"Parà, August 31, 1849.

"On the day the 'George Glen' started from here (June 8th) with my collections and letters for England, I embarked for the town of Cametà, on the Tocantins. The great sea-ship glided gently down the smooth river, seeking the ocean which was to lead it to my home, the land of civilization, cheerfulness, and activity; whilst the little canoe I was in turned its prow upwards to thread narrow channels, in the midst of dense melancholy forests, farther into this land of ignorance and barbarism. It was the pleasantest passage, however, I had yet made on these rivers; the crew was cheerful, the weather fine, and the boat a good sailer. On arriving at the mouth of the Tocantins, which is like the sea, in extent and movement of the waters, we had several squalls of wind; the first caught us with all sail set, and nearly brought us on our 'beam ends.' The night after was the loveliest I had ever witnessed; we anchored at Ave Marià, under the bank of a lovely island, clothed with forest. The men sang: we had a wire-stringed guitar, and the pilot was a capital hand at extemporaneous versifying,—to each verse a chorus, in which all the dusky crew joined,—he put a good deal of humour into the chorus, which would sometimes set all the crew laughing, the musician himself letting fall his instrument and shrieking with delight. The allusions were local; something like this:—

'Nos ramos para o Cametà carrejade de cal,

Larguemos ferro a pè de Jaguarari.

Ora pa na tara pa na.

'Senor Joao Augusto le bonite & home en pimpaò,

Mais Senhor Pedro he feio & muita ladraò.'

The allusions being local, you cannot understand this. The translation is:—

'We are going to Cametà, loaded with lime,

We let go the anchor at Jaguarari.

Chorus.—Oh! para pa na, &c.

John Augustus is a handsome man and a very good fellow,

But Mister Peter is ugly and a devil of a thief.'

We fell asleep shortly: I awoke at 1 A.M., and crawled out of the hole called the cabin,—we were under weigh, with a spanking breeze dead astern,—the moon full, shedding a light almost like day, but softened and mellow,—the air mild and limpid as crystal, and the tossing waters of dark blue foamed about the prow of the vessel: the

men were all hilarity, had got a fire on deck, and were making herb tea. The wonderful transparency of the atmosphere cannot be imagined in England. After enjoying the scene about an hour, I turned below and slept till break of day, when they called me up to see Cametà, which was yet distant on the far west bank of the Tocantins. We were still bounding before the wind, and sped with wonderful celerity to our landing-place, where we anchored at half-past six, having been four nights and three days on the passage.

"I stayed at Cametà until the 16th of July, spending my time agreeably, and I trust profitably. I here made the acquaintance of Doctor Angelo Custodio Carrea, vice-president of the province, who took an interest in my errand, and procured me a beautiful country house to live in—a most charming spot—at the entrance of a broad grassy drive through the forest to the Indian villages. In front of the house I descended a pathway through a grove, always alive with *Heliconias*, *Ageronias*, *Papilios*, and other *Diurnes*, down to the beach, where was a lovely little sandy bay, the landing-place of fishermen, and where was charming bathing. I generally bathed before breakfast, if tide permitted, and would then sit on shore on a felled palm-tree, enjoying the delicious coolness at sunrise, and looking over the expanse of blue waters, dotted with palm-clad islands; but the beauty of this situation is beyond description.

"The forest round Cametà is thickly populated by civilized Indians and mixed breed. Unlike Parà, whose neighbourhood is mostly dense and swampy 'virgin forest,' here the land is high, forest partially cut, leaving a shady grove of tall trees in most places; under the shade are the palm-thatched cottages of the people. There are roads all through the forest for fifteen miles or more from Cametà, with houses, plantations of coffee, cocoa, &c., all the way.

"The people are quiet, hospitable, and good-hearted, quite different from the inhabitants of Parà. In entomologizing, I made the acquaintance of a great number of them; entering the house, the first thing they do is to sling a hammock for you, the young girls go backward and make coffee, whilst the man fills you a pipe of tobacco, lights it, and offers it to you to smoke. If the people are better off, you get still better treated. They lead a happy life in their way. The river abounds in delicious fish; a field, a few yards square of *Mandioca*, supplies them with bread; they grow a few cotton bushes to make hammocks; coffee, cocoa-nuts, sweet potatoes, melons, and a great variety of fruit grow without any care from them, about their homes: having little work to do, they spend their time in feasts,

‘religious festas,’ about as much to do with religion, as Michaelmas fair has in Leicester.

“I left Cametà on the 16th of July, five days’ passage to Pará. The vessel in which I went leaked wretchedly: the owner, who was on board, told me very coolly, that ‘it was an old boat the owner had left to rot on the beach, and he bought it cheap.’ The men had to be overboard frequently, diving about it, stopping the leak with old rags and clay. However, the owner was gentlemanly and agreeable. I slept outside every night, wrapped in an old sail; often it rained at night, when I had to turn into an oven of a cabin, lugging the sail with me to keep it dry; when the rain ceased, no alternative but to turn on deck again to finish sleep. Such are incidents in Amazonian travelling.

“Dr. Angelo procured me a promise of passage into the interior with his half-brother, Senor Joao da Cunha, owner of a fine schooner; we were to have started at the end of July, but I have waited until now, and the vessel is still here not half laden; there is not much doubt we shall start next week. I go for eight or ten months, and am preparing provisions, boxes, ammunition, &c., for that time: my first stage is the town of Barra, on the Rio Negro, eight hundred miles from here.”

(To be continued).

Early Appearance of Saturnia Carpi.—On the 13th of the present month I bred a male specimen of this moth. Is it not unusually early for this insect?—*H. Tompkins, School Hill, Lewes, Sussex, March 20, 1850.*

Capture of Lobophora polycommaria near Lewes.—I found a fine specimen of this rare Geometra on the 12th inst., at rest on a bush, within a short distance of this town.—*Id.*

Capture of Lobophora polycommaria at Darenth Wood, Kent.—I took a fine specimen of Lobophora polycommaria at Darenth Wood, on Easter Monday last.—*P. Bouchard; 7, North Conduit Street, Bethnal Green Road.*

The Birds of Melbourne. By J. J. BRIGGS, Esq.

(Continued from page 2611).

Peewit (*Tringa vanellus*). A few pairs of lapwings breed with us annually; but formerly, before so much attention was paid to the stirring of arable lands during the spring and summer, these birds

bred in great abundance. I find that the shells of those eggs which are found on our high grounds are different in colour from those which are laid in the meadows: the former are of a dark reddish tinge, like a stiff red marl upon which they are found; the latter have a light brown ground colour. Towards the middle of summer, those birds that breed with us assemble together in flocks, and keep almost exclusively to the meadows and low grounds. Worms constitute their chief food, and it is amusing to watch them with a good telescope as they are feeding on a wet, dewy morning. They run along with great velocity, occasionally giving forth their loud wild notes, and pulling out with great eagerness any delicious worm that lies trailed along the turf: they are often so intent upon their food, as to allow of a very near approach. From the middle of August to the middle of October, the resident birds receive considerable accessions to their numbers, which I suppose are migrants from their northern breeding grounds: these accessions consist principally of young birds. During the winter months, flocks may be seen feeding daily in the meadows, but exhibit a striking partiality to particular fields. When rambling by the Trent, on a cold wintry day, the keen wind blowing about my cheeks, and the crisp sleet crumbling beneath my feet, and one met an animated being (however small) as one meets a welcome guest, how delighted have I been to watch the manners and flight of a flock of these interesting birds. When startled from a meadow, they rise into the air in a body, which is changing its form almost every minute, and many of the positions it assumes are graceful in the extreme. Now, the birds scatter themselves singly over the heavens, almost as far as the eye can reach, which seem, as it were, completely dotted over with them; — now, they collect together in a group, and form a mass so closely packed, that it seems almost impossible to penetrate it, and resembles a large black cloud, sailing slowly along the air; — now, the birds stretch away into a different shape and form a thin, narrow line, apparently elongated to many hundred yards, and presenting an appearance like a long-drawn mark shown in high relief against a light blue sky. Indeed, the body being ever in motion, varies in figure continually, and presents almost momentarily some new and beautiful position. Towards the beginning of March, the winter birds depart, and leave a few stragglers to pair and breed.

Some years ago I was traversing our low grounds, when I perceived, by the mournful actions of the parent birds, that I was near a peewit's nest. After considerable search, I could find neither eggs

nor young, but still the birds continued their cries. Accidentally, however, my eye caught sight of an object in a small pool of muddy water, which was struggling about like a young toad. On taking it out, it proved to be a young peewit. The birds, I doubt not, had placed it there for security on my approach, as it could not possibly have existed long in such an uncomfortable situation.

Oyster-catcher (*Hematopus ostralegus*). Occasionally killed off the Trent. A pair were shot by the late Mr. Bowman, off Melbourne Pool.

Common Heron (*Ardea cinerea*). A solitary heron may sometimes be descried about the shallows of the Trent, or winging his stately flight from one favourite fishing-station to another. This bird evidently journeys many miles for food, as I am not aware of any heronry or breeding-place existing within a great distance from this place. I have often watched the heron, and admired his extraordinary patience in watching for food. He enters the water — stands knee-deep — his wings closely folded — his body in an erect attitude, and his long bill inclining towards the water, in such a position as to strike immediately at any object that may swim underneath it. Here he stands for hours, if unmolested, looking the very personification of wretchedness, catching a small minnow or large beetle occasionally to reward him for his patience. His occupation, however, is not so lean and unprofitable as a novice would imagine; for on August 24, 1849, I examined a heron which had just been killed, and found no less a number than *eighty small fishes* in his bill; they seemed like roach, about half an inch long. I am convinced, from repeated observation, that the destructive propensities of the heron in taking large fishes have been much overrated. Here he chooses those stations for fishing which could not swim a large fish, and I believe his general food with us, is small eels (like worms), little minnows and roach, aquatic beetles, and an occasional water-rat.

Although this bird occupies a prominent position on the game list, most people put him away as unfit for the table; yet, if the bird is a young one, and cooked after the manner of a leveret, he will be found pretty good eating, but rather inferior to a duck.

Bittern (*Ardea stellaris*). Enclosures, drainage, and cultivation have well-nigh banished the bittern from our neighbourhood; one, however, is occasionally seen. In 1827, a bittern frequented some small beds of reeds and low marshy ground by the margin of the Trent, below Swarkeston Bridge, but appeared shy, secreting itself amongst the herbage, and giving forth towards evening a hollow,

booming noise. Mr. Plant, of Leicester, writes me word, "my father remembers a bittern being shot on the Trent, which was winged and brought alive to the Cliff at Weston. As soon as the bird was set at liberty in the house, it ran up to the fire and commenced an attack upon the burning coals!" This bird went into the possession either of Mr. Bowman, of Melbourne, or a Mr. Mills or Wills, it is forgotten which. In September, 1838, I was at the Cliff, and walking on the canal bank from Shardlow, on a gloomy evening in a shower of rain, when I came upon a bittern within the distance of a few feet; as it rose heavily, I struck at it with my umbrella, but it had passed over the Trent. This is the only time I ever saw one alive.

Glossy Ibis (*Ibis falcinellus*). A specimen of this beautiful species was captured a few years ago at Chellaston, a neighbouring village. It was seen passing over at an immense altitude, and being fired at with a fowling-piece, received a wound on the wing. It fell, and being taken alive, lived some months, feeding chiefly on young frogs. It was afterwards preserved by Mr. Cook, Museum, Derby.

Common Curlew (*Numenius arquata*). About six years ago, a pair of the common curlew visited the meadows bordering on the Trent. They came late in the spring or early in summer, and kept about those parts where the herbage grew luxuriant, and also some small pools where reeds and aquatic plants abounded. One bird was several inches longer than the other, which was supposed to be the male, but upon being killed, proved to be the female; the other escaped, and never found a second mate. They had, doubtless, come from the sea-shore to their winter quarters, with the intention of breeding; but in no instance, either before or since, have I heard of a curlew taking up its abode here on the banks of the Trent. Almost every year, however, a number of these birds are heard passing overhead, generally during the first week in April. These, I suppose, are changing their winter quarters on our southern shores for their summer haunts amongst the high grounds in the north of England or the hills of Scotland. They pass over in the evening or night; but their line of travel is indicated by their peculiar and occasionally repeated notes.

J. J. BRIGGS.

Melbourne, Derbyshire.

(To be continued).

Physiological Classification of Birds.—I perceive in the last number of the 'Zoologist' (Zool. 2780) an abstract of an interesting paper, called 'First Thoughts on a Physiological Arrangement of Birds,' by Mr. Newman, and which was read to the Zoological Society, a month ago. As ornithologists, like other good people, do not read *all* that has been published, I take the liberty of referring your readers to my 'Essay on the Classification of Birds,' published in the July number, 1846, of Prof. Jameson's 'Edinbro' New Philosophical Journal,' at pp. 50—72, which I endeavoured to arrange principally on physiological characters; consequently Mr. Newman's memoir can hardly be termed in a strict sense—"first thoughts." Now, I may observe, that the two "grand divisions" proposed by Mr. Newman, are virtually the same as my two sub-classes, see Jameson's Edinbro' Phil. Journ. p. 55 and p. 63, where they are defined. I had at first divided the class Birds into blind-born and seeing-born, but I soon found that this arrangement was not consistent with other important physiological characters, and that some groups, as pelicans, &c., must consequently be separated from their true and natural position near the divers, &c., and the herous from near the snipes, &c. Mr. Newman's terms Hesthogenous and Gymnogenous have evidently been originated from the well known botanical ones—Endogenous and Exogenous: and, indeed, the very word Gymnogenous, or Gymnogens, has been already preoccupied by Dr. Lindley, see his 'Vegetable Kingdom,' (2 edit. p. 221, &c.) The *first* of Mr. Newman's terms is clearly incorrect, *i.e.*, Hesthogenous,—which being compounded of ἑσθος—a garment or clothing,—is Esthus, not Hesthus, and it ought strictly to be from the genitive case ἑσθοος, and therefore the word should be Estheogenous. Moreover, I may be allowed to remark, why should Mr. Newman use Cuvier's French words, Plongeurs, Grimpeurs, &c. instead of Latin ones? The Columbidae (at least most of them) are born blind, but *not* altogether naked, having a thin covering of hair-like down. And to me it appears now, as it did several years ago, that the two sub-classes cannot with sufficient scientific exactness be entitled Clothed-born (Estheogenous), and Naked-born (Gymnogenous); or, Seeing-born (Visinatæ), and Blind-born (Cæcinatæ); but they can, with more accurate *physiological* characters taken from the feet, be styled, as I have already selected—Aves Inconstrictipedes—birds with inconstrictile feet; and Aves Constrictipedes—birds having constrictile, or grasping feet:—and these two sub-classes will be found to comprise the "Clothed and Seeing-born," and the "Naked and Blind-born" birds, or chicks, in a sufficiently regular or normal method—the aberrant forms constituting the exceptions.—John Hogg; Norton House, Stockton-on-Tees, April 12, 1850.

[The readers of the 'Zoologist' will have a better opportunity of judging of the similarity of Mr. Hogg's primary divisions or sub-classes and my own, if that gentleman will recapitulate in these pages the definitions he has employed to distinguish them, and at the same time say which of my fourteen sub-divisions he has arranged under each of his primary divisions. I am not tenacious of my derivations: my modicum of school Greek is well nigh forgotten; but I thought *hestheris* was Greek for *vestitus*, or *clothed*, and *gymnos* for *nudus*, or *naked*. Is it otherwise?—E. Newman].

Occurrence of the Kite (Falco Milvus) at Kingsbury.—On Wednesday, the 3rd inst., as I was standing in the village (Kingsbury) talking to a friend, a fine specimen passed over our heads within twenty yards: it is the only one I ever saw in this neighbourhood.—F. Bond; Kingsbury, April 9, 1850.

Do Fieldfares Roost in Trees? — Mr. Evans remarks (Zool. 2705), contrary, I believe, to the general opinion, that “fieldfares roost in trees.” I have, when a boy, watched them going to roost many a time; and I should say, that they roost very much in bushes,—for instance, low, thick blackthorn brakes, on which I have seen them settling in great quantities at dusk, and very commonly near water. White states (Letter to Pennant, 27), that at Selborne they “always appear to roost on the ground; * * * and that the bat-fowlers, who take many redwings in the hedges, never entangle any of this species.” Once during a very hard frost many years ago, I had several fieldfares brought to me alive, which had been taken by bat-fowling in the holly bushes in this neighbourhood. Perhaps they might have been driven to have recourse to a more than usually sheltered situation for roosting, by the severity of the weather.—*W. T. Bree; Allesley Rectory, April 2, 1850.*

Occurrence of the Black Redstart (Sylvia Tithys) near London.—I saw last week a fine female which was shot in a brick-field, at Shepherd’s Bush, in October last.—*F. Bond; Kingsbury, April 9, 1850.*

Occurrence of the Black Redstart (Sylvia Tithys) at Piddinghoe.—A fine male specimen of the black redstart, in adult plumage, was shot at Piddinghoe, a village five miles to the south of Lewes, on the 31st of March; and is now in the possession of Mr. Tompsett, of the above place. An immature male of the above species was shot on the following day, April the 1st, in the immediate neighbourhood of this town, by Mr. E. Johnstone, through whose liberality it is now in my possession.—*Charles Potter; Lewes, April 16, 1850.*

Curious Act of Instinct in a House Sparrow.—Among the many instances in the parental attachments of the lower animals, partaking rather of reason, than a mere instinctive principle, I recorded one during the early part of last year, which for its novelty, and unusually rational resource on the part of the bird, may justify my asking a corner in the ‘Zoologist’ for its insertion. Living in the city portion of the great metropolis of London, I observed one afternoon, in the aperture generally left for the cellar or kitchen window, when underground, an unfledged house sparrow, incapacitated from flying to any distance, which had been inadvertently precipitated down this same dungeon, across which in an oblique direction was laid an iron bar, extending within a foot of the surface; the mother was at the top, looking down with pity and alarm at the awkward situation of this (perhaps) her only child; many and ingenious were the attempts on the part both of parent and offspring for the regaining of the latter’s lost position, each and all proved futile and unavailing. I looked on with a degree of pleasurable excitement, mixed with fear and anxiety lest the drama should be incomplete, by the flying away of the mother and the desertion of the child; but no, Nature’s inculcated ways on these points are perfect and all-sufficient, as most beautifully this case proves, for although each new proposal seemed to be blasted in the carrying out, at length the intelligent creature, after considering for a moment, flies away, returns with a stout straw in its beak, rests for a few seconds on the edge; then conceive my delight, when the little nestling, after a chirp or two with its mother, learning no doubt the particulars of the project, climbs to the furthest end of the bar, next the ground, receives the proffered straw in its beak, and is raised, to my breathless and unspeakable astonishment, to the earth on which its now delighted mother stands. Readers, do you deem me puerile, or unmanly, when I say tears of joy and pleasure escaped me on recognising this act of love, and more than instinct, together with the rapturous delight which beat in the breasts of these two small, happy beings,

on the extrication of the one from its difficult situation?—*William H. Cordeaux ; Canterbury, February 18, 1850.*

Occurrence of the Waxwing near Coventry.—I have in my possession a specimen of the Bohemian waxwing, which was shot in November last, on the high road between Coventry and Kenilworth, in this county (Warwick).—*Francis H. Amherst ; St. Mary's, Oscott, March 4, 1850.*

Occurrence of the Waxwing near Horsham.—As the Bohemian waxwing has appeared in unusual numbers this winter, I send you the following notices of its occurrence in this neighbourhood. On the 12th of January an adult male was shot, whilst feeding on some hawthorn-berries, in the parish of West Grinstead; and on the 17th of the same month, another was obtained at Horsham: both are beautiful specimens. The sex of the latter was not ascertained; it has considerably less black on the throat than the former, but the yellow on the quills and tail is much more brilliant; the stomach contained nothing but haws.—*W. Borrer, Jun. ; Cowford, Horsham, Sussex, March 24, 1850.*

Occurrence of the Waxwing in Oxfordshire.—During the late influx of this species, one specimen only has been killed in Oxfordshire.—*A. Matthews ; Weston-on-the-Green, March 29, 1850.*

Occurrence of the Waxwing in Lincolnshire.—Four specimens of the waxwing were shot in the neighbourhood of Lincoln, towards the end of last January. About the same time several others were obtained near Boston.—*H. Matthews ; Waddington, April 2, 1850.*

Ferocity of the Magpie (Pica caudata).—Mr. George Leigh Wasey, writing to a contemporary says, "As I was travelling yesterday between Andover and the railway station, I noticed on the road a magpie struggling with some animal; on the approach of the coach it took flight, bearing away its prize to about sixty yards across a field when it dropped it, and on my brother getting off to see what it was, he found it to be a full-grown redwing: the magpie had pecked its eyes out to prevent its escape, and would soon have killed it if we had not so unceremoniously deprived him of a dinner. I believe it is not generally known that magpies ever prey upon living birds, especially birds of such magnitude and weight as a redwing. No doubt it was hard pressed by hunger and the inclemency of the season; but it is a fact worthy of the attention of ornithologists, and if you think fit to take notice of the circumstance, I will vouch for its truth." Mr. Wasey is certainly wrong in imagining (as I presume he does) that magpies never prey upon living birds, for I believe it is pretty generally known, and that to the cost of the housewife, the farmer, and the sportsman, that at a certain period of the year, the breeding season, they commit great destruction among not only the young of feathered game, ducks, and other poultry, but also among the full-grown smaller sorts of birds which they kill, to serve as food for their young, and perhaps as well as to satisfy their own voracious appetite; but I never heard that this propensity to prey upon living birds existed, and of course, as far as young game, &c. are concerned, it cannot exist at other times. It is very likely, however, that magpies would never refuse so dainty a morsel as a redwing, but I should think the redwing in question must have been previously wounded or injured in some way, as I do not think that with all his carnivorous habits, the magpie is of a sufficiently predatory nature to pursue to the death a strong and healthy bird, nay, would have no chance of catching such a bird as a redwing in a fair race, the powers of flight of that bird, both for swiftness and duration, being much greater than its own. I may, perhaps,

as well mention a circumstance which occurred within my own observation a short time ago. In a small aviary I kept a magpie, two thrushes, some gold pheasants, a blackbird, and other smaller birds; the magpie had only been put in a few days, when one morning I found one of my thrushes dead upon the ground, with nearly all its entrails torn out, though not eaten: although I had no direct proof that the magpie was the murderer, still as I knew that no rat or other vermin had found access to the aviary, I fixed him with the crime; I therefore separated him from the other birds, and no more deaths occurred. I merely mention this incidentally, and of course not at all to show or prove the naturally predatory habits of the magpie, for we well know that in captivity, the habits of birds undergo a considerable change, and I have read that even the squirrel, in a state of confinement, has been known even to *prefer* birds to other food, and has, on that account, been said erroneously "sometimes to feed upon birds."—*M. Curtler; Bevere House, Worcestershire, January 30, 1850.*

Early Appearance of the Martin (Hirundo urbica) near Hull.—Taking a walk yesterday afternoon in company with some friends to Cottingham, I observed a pair of martins flying overhead, which I pointed out to my companions, who also plainly saw them, so that there cannot be any mistake as to their identity. Is not this very early for their arrival?—*G. Norman; Hull, April 8, 1850.*

On the Autumnal Stay of Martins.—Last year I recorded (Zool. 2391) a striking instance of what not unfrequently occurs, viz., the reappearance of swallows rather late in the autumn (of 1848) after the general flight had departed, and after an interval during which none were to be seen. The autumn of 1849 afforded an instance of a different kind: a pair of swallows (*Hirundo rustica*) remained with us during the whole autumn without intermission till the 9th of November (rather a late period for this part of the country), and a single bird till the 16th. The birds took up their principal station on the top of one of the neighbour's chimneys, from which they frequently made little excursions on the wing about the village, &c., returning to the chimney-top at intervals, and remaining there for a considerable time, probably for the sake of warmth. We watched them pretty narrowly; the pair remained, as I have said, till the 9th of November, and was then reduced to a single bird, which continued about the chimney-top till the 16th, which was the last day we observed it.—*W. T. Bree; Allesley Rectory, April 2, 1850.*

Occurrence of the Hoopoe (Upupa Epops) at Bembridge.—A hoopoe made its appearance here in the month of October last: it was seen on two occasions, and was each time distinctly observed to erect the long feathers of its crest. In a few days it had disappeared from the neighbourhood.—*A. G. More; Bembridge, Isle of Wight, April 17, 1850.*

Occurrence of the Purple Heron (Ardea purpurea) near the Land's End.—I received this morning a bird of this species, in full adult plumage, which was shot in the parish of St. Buryan. The occipital, frontal, and dorsal plumes are in perfect development, and I cannot conceive a finer example. The length, from the tip of the bill to the end of the tail, 3 feet $1\frac{1}{2}$ inches; weight, 2lbs. 14 oz. I have given the length, as it varies so much from that given by Mr. Yarrell in his description, that the difference is remarkable, showing that there must be an error in the latter's description, when he says, "whole length, from the beak to the end of the tail, 29 inches."—*Edward Hearle Rodd; Penzance, April 8, 1850.*

The Supposed New Snipe.—Whilst snipe-shooting yesterday at Auchengray (about twenty miles from Edinbro', on the Lanark line), I was fortunate enough to

procure, amongst a number of the common snipe, a specimen which may, perhaps, with other evidence, prove that the length or shortness of the tail-feathers, cannot, *per se*, be considered as a sufficient character of the species Brehmi. In my specimen, which I believe is only a *Scolopax gallinago*, the tail-feathers are of the usual number, fourteen; on one side of the tail the outer-feather is considerably longer than the second and third, and nearly as long as the fourth; whilst on the other side the outer feather is *shorter* than the second. The bird is in full plumage, with no signs of moulting.—*Edmund Thomas Higgins; Edinburgh, March 15th, 1850.*

Habits of the Moorhen (*Gallinula chloropus*).—Mr. Evans's remarks on some of the habits of the waterhen (*Zool.* 2704), many of which I can, from my own experience confirm, call to mind a circumstance relating to this bird, which I witnessed in the early part of last winter. Walking by the side of a mill-pond, I started a waterhen which rose out of the sedges close under my feet, and flying not more than about thirty yards, settled in a wide ditch of water, which formed part of the pool-tail; on going directly up to the spot, I saw a waterhen (the same, I conclude, that I had just before flushed) lying on the surface of the water in the middle of the ditch, perfectly motionless, and with its head apparently under water, at least I could perceive no portion of its head or neck; I stood viewing it for some seconds, and took it for a dead bird; but on my gently stirring it once or twice with a spud I had in my hand, it began to move, and springing up flew into an adjoining osier-bed. Was this bird feigning death as a means of security?—or why did it not take shelter among the flags and Carices which abounded on either side of the ditch? A few years ago I was present at dragging of a river, when a waterhen became entangled in the net and was captured; it retained such fast hold with its long claws among the meshes of the net, that it was with difficulty we could release it, and some slight degree of force, perhaps, might have been employed in the attempt. After the bird was extricated, and laid upon the bare turf of the meadow, it appeared to be nearly dead and was unable to stand. Some means were resorted to, in the way of cherishing, in the hope of restoring animation, but all apparently to no purpose; as life, however, was not quite extinct, and with a view to give the bird a chance, it was placed among the flags on the margin of the river, when, to our surprise, it immediately roused itself up and ran away into closer shelter, as brisk as if nothing had happened to it. Are we to suppose that in either or in both these instances the waterhen feigned death for the sake of defence? In the latter instance, it may possibly be urged, that the bird had been so terrified as to have been almost frightened to death; but in the former, no further alarm had been given to the waterhen, except what was occasioned by my having accidentally intruded upon its haunts.—*W. T. Bree; Allesley Rectory, April 2, 1850.*

Enquiry respecting the Nest of the Flamingo.—Can you or any of the readers of the 'Zoologist' give me any information as to what shaped nest the flamingo makes? According to some authors its nest is of mud, conical, with a small depression at the top where the eggs are deposited, and of a sufficient height that when the bird sits astride on it, its feet just touch the ground. Now, is this really true? For why should the flamingo build such a nest, when other long-legged birds can sit in their nests with as much comfort as short-legged birds; for (as Waterton says), the thighs of birds are of a length proportionate to their legs, so that by bending the knee, the legs recede sufficiently towards the tail to allow the feet to come to the centre of the body. I have seen a flamingo sitting bathing itself in a pan of water, in the position

described by Waterton, and it appears to me that if it can do so, it can sit in a nest, instead of sitting in such an unnatural position astride on it. — *J. W. Hulke ; Deal, April 4, 1850.*

[I shall feel much obliged for any observations on this subject ; the simple assertion alluded to above, as well as figures of the bird in this strange position, are sufficiently abundant.—*E. N.*].

Variety of the Pink-footed Goose (*Anser brachyrhynchus*).—I send you a drawing of the head of a pink-footed goose, which was shot at Wretham, in Norfolk, last January. The bird was remarkable for a few white feathers round the base of the bill, similar to the principal characteristic of the white-fronted goose, but not extending nearly so far on the forehead and cheeks as in examples of that species : in other respects, I believe (for I saw the head only), the bird had nothing peculiar about it. A week or two later, my brother saw a bean-geese which had been killed at Riddlesworth, and which had similar white feathers round the beak ; and early in February, I saw in a poulterer's shop at Cambridge another bird of the last-named species, possessing the like peculiarity. From the above, and the instances mentioned by your correspondent, Mr. Gurney (*Zool.* 1966 and 2456), it would appear that those species of the British geese besides the *Anser albifrons* sometimes exhibit more or less of a white forehead ; and it is a question which remains to be answered, whether this results from age, sex, or occasional variety.—*Alfred Newton ; Elveden Hall, Thetford, April 15, 1850.*

Sailing of the Swan.—In treating of the habits of the domestic swan, it appears to me that most writers have fallen into a great mistake, when they speak of its *sailing*. In nearly every ornithological work which one takes up, one sees the grave assertion that the swan raises its wings, or rather the feathers of its wings, in order to assist it in its progress through the water. Now, the swan never *sails*, it *rows* only ; and this is proved by the simple fact of its retaining its wings in the same elevated position, whether it is proceeding with the wind, against the wind, or side-ways to the wind. A circumstance connected with this subject came under my observation a few days since. In this neighbourhood there is a pond of about two acres in extent, situated between two oak woods : on this pond there are three swans, two old birds (male and female), and one last year's cygnet. The old ones, as is usual at this season, display the most rancorous hostility against their unhappy offspring, constantly pursuing him over the water, and obliging him to take refuge on shore. A few days ago the chase was going on with the wind right astern : the breeze freshened, while the young bird with outstretched neck, and *lowered* wings was fast outstripping his unnatural parents : the old gentleman and lady found it too much for them, and as a sudden gust blew down the pond, abruptly pulled up, and faced the wind, giving up the pursuit ; but no sooner did they perceive the cygnet advancing *against* the wind, than they again gave chase, and gained on him at every stroke : after dodging about the weather end of the pool, he was at last put to his wit's end, and with an air of utter disgust, waddled ashore. The old ones had their wing-feathers raised the whole time. If they had *sailed*, they would have gained upon him when with the wind, and lost ground in the opposite direction : but the reverse of this was actually the case. If the cause of the swan's raising his wing-feathers be asked, I should answer, I no more know this than why some birds can raise their crests, and others have a pendulous horn upon their heads which they can elevate at pleasure.—*Francis H. Amherst ; St. Mary's, Oscott, April 16, 1850.*

[I have registered a number of facts, tending to prove that birds prefer meeting the wind, on all occasions.—*E. N.*].

Occurrence of the Ferruginous Duck (*Anas ferruginea*) *near Great Yarmouth*.—As it is considered rather a rare bird in this neighbourhood, at this time of year especially, I am induced to communicate to you, that on the 16th of April, 1850, a fine male specimen of the ferruginous duck was shot by a friend of mine, in a marsh adjoining the Meer.—*Robert Rising; Horsey, near Great Yarmouth, April 17, 1850.*

Occurrence of the Red-necked Grebe (*Podiceps ruficollis*) *near Penzance*.—I have just examined a specimen of this bird, which has been brought for preservation to Mr. Vingoe; the red feathers in the neck are not yet apparent, but on turning back the neck-feathers an active moult was apparent, all the young feathers emerging being bright red, with those on the tip of the head black.—*Edward Hearle Rodd; Penzance, April 8, 1850.*

Occurrence of the Black-throated Diver (*Colymbus septentrionalis*) *in Lincolnshire*.—A fine specimen of the black-throated diver was shot on Frillingham Pond, near Lincoln, on the 24th of January last.—*H. Matthews; Waddington April 22, 1850.*

Occurrence of the Black Tern (*Sterna fassipes*) *at Balmer*.—A specimen of the black tern was shot at Balmer, a village four or five miles to the west of Lewes, on the 9th of April, and is now in the possession of Mrs. Robert Hillman, of this town: this bird was seen hawking over the surface of a fresh-water pond for more than an hour before it was shot.—*Charles Potter; Lewes, April 16, 1850.*

Occurrence of the Black Tern (*Sterna fassipes*) *in Adult Summer Plumage in Mount's Bay*.—A specimen of this bird I have just seen in its full black plumage: in that state it is of rare occurrence here, and as such, it may be worth recording.—*Edward Hearle Rodd; Penzance, April 8, 1850.*

Occurrence of the Fork-tailed Petrel (*Thalassidroma Leachii*) *near London*.—A fine specimen was caught alive, but very much exhausted, on the 4th of January, 1850, by a man at work on the high road between Edgware and Stanmore.—*F. Bond; Kingsbury, April 9, 1850.*

The Great Sea-Serpent again.—Ever since Professor Owen attempted to confound this leviathan with the seals, on which he probably feeds, taking in whole shoals of them at a mouthful, and draining off the water with his *seuserpentbone* apparatus, in the manner of a whale filling his stomach with Medusæ and shrimps: ever since the promulgation of this humiliating hypothesis, the great sea-serpent has felt himself snubbed and has doggedly kept in deep water, pertinaciously resolved, no doubt, to withhold himself in future from the incredulous malevolence of man. But he has relented: the recurrence of St. Valentine has warmed his heart: he has once more risen to the surface, and has wisely concluded to shun the disparaging Britishers, and to select, as of yore, for the scene of his auto-exhibition, the shores of a nation, at once the smartest and most credulous on earth. The papers of the United States are fraught with intelligence respecting him; cannon have been discharged, and reports says that he is actually ashore. My first extract is from a religious newspaper, entitled the 'Christian Mercury':—"The following letter from a gentleman of Beaufort gives exciting news of what may, by this time, be the 'seat of war.' The old

fellow has got into close quarters, and if he does not make a sudden and fortunate dash, has nothing better than offering himself as an oblation on the altar of science:—Beaufort, March 15, 1850. The report of Captain Bankenship and passengers has been verified by many other witnesses. This formidable sea-monster has been seen again to-day, we understand, in our waters. When discovered by those on board the steamer, 'his eminence' was in Port Royal Sound, a distance of seven or eight miles from this town. Since that time he has been lazily making his way up Broad River, and was seen by a gentleman, we understand, to-day in White Branch River, an arm of the Broad. He is reported to be making his way higher up still, when, perhaps, he may be captured. He is described as being from 120 to 150 feet in length, and of proportionate bulk; has the head of a serpent, which he carries, when in motion, five or six feet out of the water. About ten feet from his head is a hump, resembling a huge hogshead, and as far as he could be seen out of the water a succession of humps was observed. He was pursued for several miles along the bank of the river, at times the party in pursuit coming very near to him. He was shot at with a rifle and shot gun, which had the effect of making him timid, and caused him to sink below the surface of the water when nearly approached. We understand that a party from this place has been made up to capture him, if possible. The plan is to man two large flats with a cannon to each, one going below where he is represented to be, and the other above, and then approach each other, and, when he is discovered, to fire into him. In this way he may be taken if, peradventure, he does not take them first. The Whale Branch is not more than 100 yards wide, and there is every probability of an animated conflict with this king of the waters within his own dominions; and I suppose it is admitted that the battle must be waged upon his own terms. The 'Charlestown Courier' has a letter from Beaufort, of the same date, and of a similar tenour, to which is appended the following:—"Information has just reached us that the said seaserpent is ashore at the mouth of Skull Creek. If so, the prize is certain, and Beaufort immortalized." The London papers have repeated all this, intermixed with a perfect flood of wit: the shafts of which are directed against believers and unbelievers in a very pleasing and impartial manner. Is it still a hoax, or a Brachiop-tilon Hamiltoni?—*Edward Newman; London, April 20, 1850.*

Proceedings of the Linnean Society.

March 19, 1850.—ROBERT BROWN, Esq., F.R.S., President, in the chair.

Sir William Hooker communicated a paper, consisting of notices of some plants brought home by H.M.S. Herald, lately employed in search of Sir John Franklin.

April 2, 1850.—ROBERT BROWN, Esq., F.R.S., President, in the chair.

Mr. Miers read a paper "On the Natural Order of Plants Trimaceæ," and described three new genera and several species, which have been found in the old and new continents: the names of the genera are Sciaphila, Hyalisma, and Loridium.

Proceedings of the Zoological Society.

Monthly General Meeting, April 4.—E. WYNDHAM, Esq., in the chair.

P. Sclater and T. Dry, Esqrs., were elected Fellows. Samuel Gurney, jun., and I. Ingram Travers, Esqrs., were proposed as candidates for the Fellowship.

The Report of the Council stated that Her Majesty had honoured the Society by the gift of a lioness, a magnificent leopard, a pair of ostriches, and a pair of gazelles, recently received from Morocco. The hippopotamus presented by the Viceroy of Egypt was reported to be in vigorous health at the date of the Hon. C. A. Murray's last letter (March 18), and it is expected that the animal will arrive in this country—with several other valuable accessions to the menagerie—about the end of next month. Communications have also been received from A. N. Shaw, Esq., Bombay, and Lieut. Tyler, R.E., Santa Lucia, announcing the shipment of some interesting quadrupeds and reptiles.

The visitors to the gardens on Easter Monday and Tuesday amounted to 5940.

Proceedings of the Entomological Society.

April 1, 1860.—G. R. WATERHOUSE, Esq., President, in the chair.

The following donations were announced, and thanks ordered to be given to the donors: 'Entomologische Zeitung,' November and December, 1849; 'Linnæa Entomologica,' vol. iv.; by the Entomological Society of Stettin. 'The Zoologist' for March and April; by the Editor. 'Biographical Notice of the late Edward Doubleday;' by J. O. Westwood, Esq., the author (from the 'Gardener's Chronicle'). 'Monograph of the larger African Species of Nocturnal Lepidoptera, belonging or allied to the Genus Saturnia,' with four plates; by J. O. Westwood, Esq., the author.

The following gentlemen were balloted for and elected Corresponding Members of the Society: Herr M. Bach, Boppard, on the Rhine; H. G. Dalton, Esq., George Town, Demerara.

Mr. Westwood exhibited a specimen and drawing of *Cholovocera Maderæ*, a new Coleopterous insect, remarkable for having the faceted eyes at the posterior angles of the head, replaced on each side by six small, semiglobose, pellucid ocelli, precisely similar to the ocelli at the sides of the head of many larvæ, being the only species throughout the whole of the metamorphic winged insects in which this peculiarity had been observed to exist.

Mr. Westwood exhibited two insects mounted on gelatine, which he considered was preferable to talc, as it was more transparent, and the insects were more firmly secured, for the gum by which they were fastened was not so liable to scale off.

Mr. Westwood also stated that the pupa-cases exhibited at the last meeting by Mr. Bond, and then supposed to be those of a species of *Galeruca*, belonged to a species of *Chilocoris*, and had been noticed by De Geer.

Mr. Stainton exhibited a British species of *Micropteryx* which he had previously overlooked, though it was described by Mr. Stephens under the name of *concinella*. It appeared that this species was the true *Aruncella* of Scopoli, and that the insect described under that name by Mr. Stainton, in his monograph of the genus, must now

resume the name of *Seppella*, *Fab.* The females of both species, being destitute of markings, would probably be very difficult to distinguish from each other.

Mr. S. Stevens exhibited some beautiful new species of butterflies he had recently received from Mr. Wallace, by whom they were captured, at Santarem, on the Amazon river: among them he had been able to identify *Callithea Godartii*, *Feisthamel* (male and female), and *C. Lepreuri*, *Feisth.* He also read an extract of a letter from Mr. Wallace, stating that the males of *C. Godartii* frequent the higher parts of trees, and are very difficult to capture.

Mr. Douglas exhibited an empty pupa, apparently of some *Noctua*, in a thistle-stem of last year, and some living larvæ, found the preceding week, at Darent Wood, on broom. These larvæ, which did not seem to be scarce, drew together several of the smaller twigs of the broom, forming a covering, in which they appeared to have hibernated, and in which they fed on the bark: they resembled in appearance and habit the larvæ of *Depressaria assimilella*, as described by Fischer-von-Röserstamm.

Mr. Douglas exhibited a new species of *Elachista*, which he proposed to name *occultella*, and of which he read the following description:—

Family TINEIDÆ.

ELACHISTA OCCULTELLA.

Caput fuscum; antennæ nigræ; thorax niger; alæ anticæ nigræ griseo irroratæ, medio fasciâ lævi obscurâ, maculis duabus oppositis griseis, apicibus ratione ciliærum retundatis. Alæ posticæ nigræ, ciliis fuscis.

Expansio alarum $3\frac{1}{2}$ lin.

Head fuscous; antennæ and thorax black; anterior wings black, dusted throughout with minute griseous atoms, in the centre a slight obscure fascia, towards the apex on either margin a small obscure griseous spot, and the cilia long. Posterior wings black, with fuscous cilia.

Very like *E. obscurella*, *St.*, but smaller and darker, the anterior wings more rounded on the costa, drawn more suddenly to a point, and by reason of the long cilia the ends appear rounder.

He found this species May 25th, 1848, flying above long grass under trees, in a damp part of West Wickham Wood.

He also read the following description of a moth he had exhibited at the meeting in February:—

Family TORTRICIDÆ.

GRAPHOLITHA (STIGMONOTA, Guen.) WEIRANA.

Caput fusco-nigrum, fronte palpisque albidis. Alæ anticæ obtusæ, fusco-nigræ, fasciâ mediâ curvatâ obscurâ subplumbeâ, punctis sex costalibus albidis, ciliis subplumbeis, micantibus. Alæ posticæ cinereo-fuscæ, ciliis concoloribus. Subtâs omnino cinereo-fusca.

Exp. alar. $5\frac{1}{2}$ lin.

Head fuscous black; face and palpi whitish. Anterior wings obtuse, rounded, soot-black, with an obscure curved medial fascia, and six whitish costal spots, in pairs, of which the first is at the middle and the other two towards the apex; cilia lead-coloured, shining. Posterior wings cinereous-fuscous, with concolorous cilia. Underneath, the wings, body and legs are all of an uniform cinereous fuscous hue.

This species is most closely allied to *Stigmonota redimitana*, *Guen.*, from which it differs chiefly in being larger, of a lighter colour and less glossy, and the fascia less distinct: underneath, also, the fore legs and breast are not white.

Taken at the end of May, flying in sunshine round beech-trees, at Mickleham. He had great pleasure in dedicating this species to him in whose company he captured it, Mr. Weir, who is well known as one of our most acute and industrious entomologists.

Mr. Stainton exhibited some small Lepidopterous larvæ mining in leaves of *Helianthemum vulgare*, which plant was not hitherto known to afford nourishment to any species of Tineæ.

A paper by Mr. S. S. Saunders was read, entitled "Descriptions of two New Strepsipterous Insects from Albania, parasitical on the Genus *Hylæus*, with some account of their Habits and Metamorphoses," of which the following is an epitome:—

Order STREPSIPTERA, Kirby.

GENUS HYLECTHRUS.*

Caput magnum, transversum. Oculi ingentes. Antennæ 5-articulatæ; articulo basali brevi; secundo parvo, truncato; tertio longissimo, spatulato, totâ ferè latitudine subæquali, quartumque basin versus latere externo ferenti; hoc parvo, annuloso; extimo (5to) tertio simillimo, simul productis, adsistentibus. Palpi parvi, articulo basali crassiori, apice obliquo; apicali graciliori, setoso. Thorax anticè constrictus, disco gibboso, capiti latitudine subæquali; scutello maximo, elongato-triangulari, margine antico sinuato, lateribus rectis, angulo postico acuto porrecto. Pseudoelytra parva, apice valdè dilatato, crassiori, subconcavo. Alæ, costâ dimidio basali inspissatâ, seu potius nervâ subcostali abbreviatâ quasi conjunctâ; primâ discoidali prope basin furcatâ, ramo antico cum costâ parallelo, ultra medium alæ evanescenti, ramo postico ejusdem longitudinis, recto, deflexo: prope apicem alæ nerva duplex incurva exstat, cujus basis intra furcam retrò extendet: nervis reliquis deflexis, quarum duæ approximatae, rectæ, margine interno propriiores; altera recta analis ferè oblitterata. Abdomen valdè constrictum. Pedes longitudine mediocres, posteriorum tibiis dilatatis, compressis, genubus constrictis; tarsorum articulis quatuor, apicali integro. Mas.

Femina (cui, modo congenerarum, alæ, pedes, antennæ, necnon oculi desunt) vermiformis; cephalothoracem complanatum, supra subconvexum, infrâ subconcavum, e dorso apicis educantis tantum modò emittens.

Sp. 1. HYLECTHRUS RUBI.

Niger, gibbosus; pedibus luteis; alis lacteis, nervis saturatè piceis. Mas.

Long. corp. $\frac{1}{2}$ — $\frac{3}{4}$ lin. Expans. alar. ferè $1\frac{1}{2}$ lin.

Femina, cephalothorace pallido, disco utrinque vittâ brunneâ, quandoque basin versus punctis obscuris duabus, seu lineolis transversis, signato.

Habitat in Epiro, intra corpora *Hylæi* versicoloris parasiticus.

* *Hylæus*, ἑχθρὸς, hostis.

Sp. 2. *HYLECTHUS QUERQUS*.

Differt magnitudine duplò majori, alis parùm obscurioribus, nervisque magis nigricantibus. Mas.

Long. corp. $\frac{3}{4}$ —1 lin. Expans. alar. ferè $1\frac{1}{4}$ lin.

Individuis mutilatis tantum vidi.

Habitat in Epiro, Hylæi gibbi parasitus.

Order HYMENOPTERA.

Section MELLIFERA, Latr.

Family ANDRENIDÆ, Latr.

Genus *HYLEUS*, Latr. (PROSOPIS, Jurine).Sp. 1. *HYLEUS RUBICOLA*.

Niger; genis, clypeique puncto, luteis, vel albicantibus, vel denique omninò nigris; antennis subtùs ferrugineis; prothoracis lineolâ sæpe interruptâ, humeris, squamâque alarum, flavescantibus; tibiis tarsisque plus minusve ferrugineis vel pallidis; abdominis segmento primo omninò, secundo nonnunquam ad basin, rufo-fulvis, reliquis nigro-piceis, marginibus posticis pallidioribus; alis subhyalinis, nervis piceis. Femina.

Long. corp. $\frac{3}{4}$ unc. Exp. alar. $\frac{7}{8}$ unc.

Mas differt, genis clypeoque albidis; thorace, abdomine, squamâque alarum, nigris.

Habitat in Epiro rubis exsiccatis circum Ambracicum sinum.

Sp. 2. *HYLEUS VERSICOLOR*.

Niger; genis, clypei lineâ, prothoracis lineâ interruptâ, humeris, squamâque alarum, flavescantibus; antennis subtùs ferrugineis; tibiis tarsisque anterioribus ferè omninò, intermediis posterioribusque basin versus, pallidioribus; abdomine vel toto vel parte majori pallide flavo; alis subhyalinis, nervis piceis. Femina.

Long. corp. $\frac{3}{4}$ unc. Exp. alar. $\frac{7}{8}$ unc.

Variat genis luteis, clypei puncto concolori, vel disco omninò nigro.

Habitat in Epiro rubis exsiccatis cum præcedentibus. (An species distincta?)

The dissimilarity in appearance between this and the preceding species is so striking, that, although he inclined to consider the difference as resulting from parasitical attack, it would perhaps be hazardous to assert this without further proof of their identity. It is, however, remarkable that all the male parasites which he has obtained were derived from these pale-coloured specimens, whereas the apterous females were restricted to the former,—a circumstance not unworthy of attention, as connected with the physiology of sexual development.

Sp. 3. *HYLEUS GIBBUS*.

Niger, gibbosus; genis, tibiisque anterioribus anticè, luteis; posterioribus ad basin, intermediis vix, tarsorumque quatuor posteriorum articulo primo, albicantibus; antennis subtùs ferrugineis; prothoracis lineolâ interruptâ tenui, humeris, alarumque squamâ, flavescantibus; abdomine nigro; alis fuscentibus, nervis piceis. Femina.

Long. corp. 3 lin. Expans. alar. $4\frac{1}{2}$ lin.

Habitat in Epiro, quereibus prope Sinum Ambracicum.

The *Hyleothrus quercus* was obtained from this species, the abdomen exhibiting irregular rufous patches in some specimens parasitically affected.

Having reared two new species from the bodies of bees of the genus *Hylæus*, Mr. Saunders availed himself of the opportunity to offer some remarks on these parasites, and certain particulars which had come under his notice. The first species he obtained from oak-galls, which he had placed in a box and forgotten till some months afterwards, when he found—on some *Hylæi* which had been produced and died—abdominal protuberances caused by the presence of Strepsiptera, still in their pupa envelopes, having perished *in situ* after attaining the imago state. The following year he could find no more *Hylæi* in oak-galls; but knowing that the larvæ of these bees nidificated in briars, he collected some briar-snags, and on the 28th of May selected from their occupants five already-formed pupæ, the remainder being still in the larva state: of these, three completed their transformations within two days, when he saw the usual parasitic phenomena, not previously apparent; and the next morning, on placing them in the sun, two winged parasites—smaller than those previously obtained from the *Hylæus* of the gall—speedily came forth. The remaining selected pupæ never attained the imago state. From the ample stock of larvæ and briars remaining he expected to have reared numbers of the parasite, but in this he was mistaken, the gestation of the parasite apparently rendering the *Hylæus* precocious, for none of the bees that came out late produced any parasite: yet although the bees which produced parasites have always been observed to assume the imago state before others not parasitically affected, their appearance has varied according to the season, from the middle of May to the middle of June. The parasitic pupæ have almost invariably shown themselves contemporaneously with the imago bee (never sooner), whose contortions in wriggling itself out of the pupa-envelope may not impossibly assist the parasite in driving the prominent dentate apex of the male pupa, or the subcuspidate cephalothorax of the female, through the abdominal folds; though it may indeed also be assumed that this is accomplished, as Dr. Siebold seems to think, by the larva. Among another lot of larvæ and pupæ of *Hylæi*, set apart and carefully watched, no symptom of Strepsipterous distension could be discovered in either of those stages: however, he at length observed in two pupæ, on the right side only, the dark markings usually preceding the development of the bee, and found, on the pupa-pellicles being discarded the next day, Strepsipterous parasites ready to burst forth had become conspicuously prominent on the opposite side. So long as the *Hylæi* remained in the dark, the parasites made no attempt to leave their pupæ, as an incentive to which light appears essential; for in one instance, some *Hylæi* having become mature in a closed box, where they remained some time, none of the parasitic skull-caps were removed; so that it seems that unless aroused, after assuming the imago state, by the stimulus of light, they die without emerging from the pupa-case. Adverting to the observations of Mr. Westwood and Dr. Siebold on the hexapod larvæ of the Strepsiptera, and those of Mr. Newport on the whole series of changes which take place in the ovum within the body of the female *Stylops*, herself contained within that of the bee, he said that they did not affect the origin of these ova, nor did it appear that their presence had been detected in any larviform Strepsipterous insect obtained from a bee not taken at large, whereby the possibility of extraneous oviposition would be absolutely negatived: but the circumstantial evidence affecting the

relations of these hexapods with the *Strepsiptera* is so convincing, and the conditions essential to their future maintenance and propagation—involved in the exploded theory of their hyper-parasitic character—have been so nearly reduced to an *argumentum ad absurdum* by Mr. Westwood, that no reasonable doubt can be entertained upon this point. The male pupæ, as Dr. Siebold affirms, always appearing towards the commencement of summer, but never surviving the winter, it follows that the hexapod larvæ produced in the spring must, by a speedy transition, assume the pupæ state at the time when the first pupæ of the males are observed; which well accords with the habits and equally rapid metamorphoses of the *Polistes*, while offering a remarkable contrast to the tardy development of the larvæ of other *Strepsipterous* genera, which, like *Stylops*, *Halictophagus*, and these parasites on *Hylæus*, are associated with bees long retaining their immature condition, and enjoying comparatively but a brief existence after quitting their cells in the imago state. It is therefore to be regretted that Dr. Siebold, by collectively embodying under one category results derived from the *Stylops* and *Xenos*, and by simply setting forth the deductions so obtained, should have afforded no opportunity of classifying the evidence for the purpose of comparison; whereby its bearing upon other points might be correctly ascertained, and a consistent series of well-assorted facts more accurately propounded. With regard to the genus to which these parasites upon the *Hylæi* may belong, the general conformation of the antennæ and tarsi might tend to associate them with *Xenos*, yet their habits, consorting with the *Mellifera*, bring them into close relation with *Stylops* and *Halictophagus*, so that they seem to supply a connecting link between *Xenos* and *Stylops*, coinciding with the position which the *Hylæi* themselves occupy between the *Vespidæ* and the *Mellifera*, thus constituting a new genus, for which he would propose the name of *Hyleothrus*, readily distinguished at first sight by the broad laminae of the antennæ, which are nearly of equal width throughout, whereas in *Xenos* they gradually taper from the middle to the apex; the palpi in the former being less conspicuous, and the thorax less, considerably more gibbous, as well as wider and shorter in proportion. With regard to an opinion which has long prevailed, that the larvæ of the *Hylæi* are parasitical feeders upon the stores of other *Mellifera*, it does not appear to be borne out in those which he has reared; for having obtained many specimens from cells adapted to the size of the larvæ, and constructed in appropriate channels through the pith, the peculiar transparent tapestry of the *Hylæi* being continued throughout each series of cells in uninterrupted succession, he could not but infer that these are no casual intruders or predatory usurpers, but lineal descendants of the original constructors and purveyors. On more than one occasion he had reared *Hylæi* from briars wherein a species of *Osmia* was also met with, but the cells of the one were perfectly distinct from those of the other; the *Hylæus* having simply availed itself of an excavated briar after the *Osmia* had completed its labours, a deposit of acidulous honey being found intermediate between the two sets of cells. Whence could this honey have proceeded, and for what purpose could it have been collected? Can this be the nature of the food upon which the *Hylæus* larvæ subsist, and could it have found its way hither by exuding from the cells of the *Osmia*? This is a problem involving many points difficult to explain, the solution of which—as defining the habits and economy of the *Hylæi*—offers an interesting subject of inquiry. On one occasion he found some pupæ of *Hylæus* in a mud-cased briar containing the deserted cells of an *Odynerus*, the *Hylæi* in this instance being arranged obliquely: it will, however, scarcely be contended that the *Hylæi* were parasitical feeders upon

the store laid up for the zoophagous *Odynerus* larvæ, nor was there any trace of subsequent occupation by an *Osmia*. In another instance he found, in an excavated briar, the lower part tenanted by three larvæ of *Cemonus*, and the upper portion by several larvæ of *Hylæus*: in this case, the time for the appearance of the perfect *Cemoni* being prior to that of the *Hylæi*, the latter were destroyed by the former while making their exit. The memoir concluded by saying that the specimens illustrative thereof were now presented to the Society.

Referring to Mr. Saunders's Memoir, Mr. Westwood observed that he had thought the *Hylæi* were parasitic; and Mr. Smith said that he did not believe they were parasitic, for he had seen individuals excavating bramble-sticks for their cells.

Copies of the President's Address at the Anniversary Meeting, and of Part i. vol. i. of the new series of the Society's Transactions, were laid on the table.—*J. W. D.*

Proceedings of the Microscopical Society of London.

April 17, 1860.—*Dr. ARTHUR FARRE*, President, in the chair.

Capt. R. H. Manners, R.N., J. B. Mummery, Esq., H. Cantis, Esq., Capt. Trotter, C. F. White, Esq., F. H. Wenham, Esq., and R. Meeslayer, Esq., were balloted for and duly elected members of the Society.

A translation of a letter from *M. Nachet*, respecting the construction of his prism, was read.

A paper, by *F. H. Wenham, Esq.*, "*On a New Method of Illumination*," was read. After some preliminary observations, in which allusion was made to the want of sufficient aperture in *Nachet's* prism, and also to some supposed defects in its mode of action, the author proceeded to describe a construction by which those defects might, in his opinion, be remedied. It consists chiefly in the employment of two of *Nachet's* prisms in juxtaposition with a dark well between them, by which means he expects to be able to throw an oblique pencil of light in two opposite directions across an object, and thus not only produce a greater amount of light, but also correct many of the false appearances produced by the former mode of illumination. This arrangement, however, he had not as yet had an opportunity of carrying into effect, although he did not doubt of its success.

He next proceeded to describe another mode of illumination, consisting of a parabolic reflector of one-tenth of an inch focus, with a polished silver surface, having the apex so far cut away as to bring the focal point to such a distance above the top of the apparatus, as may be equal to the thickest glass commonly used for mounting objects; a disk of thin glass is placed at the base of the parabola, in the centre of which is cemented a dark well, with a flange rather larger than its diameter, being equal to the aperture at the top of the reflector, for the purpose of preventing the direct rays from passing through the apparatus. There are various necessary adjustments, and a revolving diaphragm having two apertures may also be applied, by means of which two pencils of light in opposite directions may be obtained, if required. The apparatus was exhibited, in action, after the meeting, and appeared fully to realize the views of the inventor.—*J. W.*

Proceedings of the Tyneside Naturalists' Field Club.

A meeting of the club was held in the committee-room of the Literary and Philosophical Society, Newcastle-on-Tyne, on the evening of the 4th of April; the Rev. R. C. COXE, Vicar of Newcastle, in the chair.

The President, Dennis Embleton, Esq., M.D., read two papers: one, "On the Old English or Black Rat," skins of which (taken at Stockton-on-Tees), along with drawings of its anatomical peculiarities, were exhibited. The other paper was "On the Short Sun-fish," the specimen of which exhibited was taken off Cullercoats last year. Dr. E. entered minutely into its anatomy, pointing out its more prominent peculiarities, and illustrating his remarks with drawings from the pencil of Mr. A. Hancock: the paper will form a valuable addition to our knowledge of these strange creatures.

Another paper was by Ralph Carr, Esq., being the second part of his "Observations on Composite Names of Places, chiefly in Northumberland, of Anglo-Saxon derivation; being a contribution of materials towards the formation of an Archaic and Orthographical Chart of the County."

Mr. James Hardy contributed a paper on the habitats, &c., of some "New British Homopterous Insects." In it he characterised a new genus (*Dikraneura*), and described seventeen new species, viz.—

Typhlocyba plagiata. Gibside and Penmanshiel Wood.

—— *crimisa*. Woods near Winlaton Mill.

—— *rubi*. On the bramble and hazel, at Gibside and Penmanshiel Wood, at the end of October.

—— *lutea*. Berwickshire.

—— *quadrisignata*. In meadows and deans, common.

—— *octonotata*. Beat out of willows, on the Derwent; August.

—— *sexmaculata*. Gibside.

—— *jucunda*. Near Winlaton Mill, in August.

—— *Stachydearum*. Common, being met with so late as December.

Dikraneura variata. Abundant amongst grass, and in sea-caverns, on *Geranium Robertianum*, in October.

Aphodrus spilotocephala. Meadows; Newcastle, Berwickshire, and near Edinburgh.

—— *juvenca*. Banks of the Derwent.

—— *melanopsis*. Among short herbage, on barren banks, Berwickshire.

—— *marmorata*. Beat out of bushes, on the banks of the Derwent and in Berwickshire.

Acucephalus adustus. In fields, late in autumn.

Parapia pallidipennis. Bents near South Shields; Berwickshire and near Edinburgh.

Cixius dorsalis. Taken at Milne Garden, near Coldstream, Berwickshire; June.

At the conclusion of the meeting Dr. Charlton read a letter which he had received from W. K. Loftus, Esq., detailing his late important Chaldean discoveries.—*T. J. B.*

Description of the Individual of a Species of Bat (? *Vespertilio pruinus*), found in the Island of South Ronaldshay, in the Orkneys, in the year 1847 (See Zool. 2805, &c.). —I have much pleasure in sending a description of this bat, according to the requests of Mr. Tomes and Mr. Newman. I am sorry that I am not enough of an artist to be able to make a drawing of the more characteristic parts. The teeth appear to be of the insectivorous form: the formula of dentition is, I. $\frac{1}{2}$, C. $\frac{1}{2}$, P. M. $\frac{1}{2}$, M. $\frac{1}{2}$. The upper incisor is close to the canine, there being apparently no teeth in front in the upper jaw. The divisions between the teeth of the lower jaw are not very easily made out in this dried specimen, and it is therefore possible that the formula I have given may be incorrect. The ear is somewhat like that of the Noctule: the upper angle is rather more depressed, and the lobe does not appear to descend below the level of the opening of the ear; but as it is somewhat crushed, this is not very certain: also, the tragus is longer than in the Noctule. The ear is nearly covered with hair, inside and out, except at the margin, where the black skin—supported on cartilage curled back from the concave side of the ear—is quite exposed. The orifice of the nostrils is comma-shaped, and the muzzle is of similar proportions to that of the Noctule. The face, head, and the whole of the body, are covered with long hair; each hair divided into four belts of colour, dark brown at the roots, then light tawny, again dark brown, and white at the tips: each of these belts, in those parts of the body where the hair is longest, is an eighth of an inch in breadth, except the white belt, which is less. The hair of the upper surface extends over the whole of the interfemoral membrane and the backs of the toes of the feet: in these situations the colours of the hairs have blended into two only, brown tipped with white. It passes, without decrease in thickness, from the sides of the body upon the flying membrane, and ends abruptly in an imaginary line drawn from the foot across the middle of the humerus to the anterior margin of the membrane: that is, it extends for an inch, more or less, beyond the body on each side, and over the whole of the membrane of the tail. On the upper surface of the wing there is also a very small tuft in the hollow of the bend of the elbow, another between the root of the thumb and fore-finger, and a few short scattered hairs on other parts near the principal bones of the wing. Underneath, the colours are less bright than on the back. As the hairs leave the body they gradually change to tawny, and they extend in the form of a close pubescence along the anterior part of the flying membrane as far as to a little beyond the wrist; indeed nearly the whole of the third metacarpal is accompanied by a narrow strip of hair: opposite the elbow and the wrist it forms a band of an inch in breadth; between these points it is rather less: that part of the membrane where these hairs are implanted on the under surface is tawny, both above and below; the rest of the membrane of the wing and the interfemoral membrane are black. The margin of the hair just described on the under surface of the wing gradually turns, opposite the elbow, towards the knee, and the boundary line is continued through the knee to the middle of the bones of the tail, so that the proximal half of the interfemoral membrane is covered with hair; but all the hair on the under side of the membranes, as it has gradually changed in colour from that of the body, so it differs from it in being finer and less closely set; whilst the hair on the upper surface of the membranes, at least the greater part of it, all that is continuous with that of the body, differs little from this last in character. The membrane is in width before the bend of the elbow $\frac{3}{4}$ ths of an inch; behind it nearly $1\frac{1}{4}$ inch: it extends to the tips of all the digits of the anterior extremity, except the first, where all beyond the metacarpal bone is exerted, and this digit alone is

armed with a claw, shaped like a cat's. The second digit is tied within an eighth of an inch of the third, and as it terminates sooner its weak distal phalanx is supported by a still closer proximity to the penultimate phalanx of its neighbour. The third and fourth digits are nearly an inch and a half apart at their tips, and the last phalanx of each appears to be cartilaginous, or is at least bent along the edge of the membrane in a direction towards the other. From the tip of the fourth to the tip of the fifth is about $2\frac{1}{4}$ inches, and from this to the foot is also about $2\frac{1}{4}$ inches. The edge of the membrane reaches the outer side of the foot at the distal extremity of the metatarsal bones, and the part of the foot beyond these bones is free. Between the foot and the tail, the membrane starts from the tarsus along the "spur," which supports it for about three quarters of an inch, and it finally reaches the very tip of the coccyx. The dimensions are —

	in.
Tip to tip of wings	15
Muzzle to end of tail	$4\frac{1}{2}$
Head.....	$\frac{7}{8}$
Tail	$2\frac{1}{2}$
Length of ear	$\frac{3}{8}$
Breadth of ear.....	$\frac{3}{8}$
Length of tragus	$\frac{1}{4}$

The measurements of the bones, as accurately as they can be ascertained, with the soft parts still *in situ*, are —

Anterior extremity.

	in.
Humerus.....	$1\frac{1}{2}$
Radius.....	2

	Metacarpal.		1st phalanx.		2nd do.		3rd do.
	in.		in.		in.		in.
First digit	$\frac{1}{8}$	.....	$\frac{3}{8}$	.....	$\frac{1}{8}$ inclg. nail.		
Second do.....	$2\frac{3}{8}$	.....	$\frac{1}{4}$				
Third do.	$2\frac{3}{8}$	.....	$\frac{1}{4}$	.....	$\frac{7}{8}$	.....	$\frac{1}{8}$
Fourth do.	$2\frac{1}{2}$	.....	$\frac{7}{8}$	.....	$\frac{1}{2}$	.....	$\frac{3}{8}$
Fifth do.	$1\frac{1}{4}$	.....	$\frac{3}{8}$	.....	$\frac{3}{8}$	.....	$\frac{1}{8}$

Posterior extremity.

	in.
Femur	$\frac{7}{8}$
Tibia	$1\frac{1}{8}$
Foot	$\frac{3}{8}$
Spur	$\frac{1}{4}$

The five digits, of nearly equal length, are each tipped with a strongly hooked claw. There are nine caudal vertebræ.—*John Wolley*; 3, *Roxburgh Terrace, Edinburgh, May, 1850.*

Remarks on Bats.—On the cover of the January number of the 'Zoologist' you request information on British bats. Perhaps the following observations and experiments of M. de Jurine, in the 'Journal de Physique' for 1798, may prove serviceable to you or your friend, B. F. Tones, Esq. The experiments of Jurine were made

only on the long-eared bat (*Plecotus auritus*) and the horse-shoe bat (*Rhinolophus Ferrum-equinum*), which he procured from the vaults under the fortifications of Geneva. When the horse-shoe bat attaches itself to a wall it contracts its body, and wraps itself up in its fur in such a manner that it might be taken for a black chrysalis. The long-eared bat appears less careful of itself, and first makes use of its hind feet, and then those before, in order to affix itself to a wall. The temperature of the vaults which served them for a habitation was between 50° and 57° Fahr.; that of the external air between 27° and 30°. M. Jurine exposed some of these animals to a temperature between 36° and 39°: several of them perished, and others fell into a state of torpidity, from which he was not able to rouse them by any touching, though a gentle current of air directed against them caused them to make a movement by drawing back the whole body on the hind legs: he had also observed the same effect on mice. He also remarked that the approach of a candle agitated and awakened them, and a violent agitation of the air by which they are surrounded makes them speedily take wing. During the torpid state of these animals, no movement is observed which can indicate that they breathe. A small horse-shoe bat, a large one of the same species, and a long-eared bat, were placed on a stone, and exhibited signs of life at different periods, but their inspiration and expiration were extremely irregular, particularly those of the long-eared bat. There is a striking difference between the position of these two species of bats when they fix themselves against any object. The horse-shoe bat fixes itself at once, with its head down and its legs upwards; while the long-eared bat turns itself round quietly, in order to assume very often an oblique position. De Jurine then proceeds with the experiments of depriving them of sight, following the example of Spallanzani, who published a small work on this subject. De Jurine, however, extended his experiments further than Spallanzani, from which we gather the following. De Jurine placed several willow-twigs, three feet in length and six inches apart from each other, and let loose two bats, which passed and repassed between them without touching them with their wings, and when their flight was ended always attached themselves to the same cornice. He then cut out their eyes, during which operation the long-eared bat suffered a considerable hemorrhage from the ocular orbits: being let loose in that state, they still flew to the same interstices: these being barred up, they made choice of others, through which they passed several times, always avoiding to touch the twigs with their wings, and for that purpose they passed obliquely. The long-eared bat sometimes stretched out its neck, and made choice of the object to which it wished to attach itself; it also did this before it was blinded: it often applied one of its hind paws to its eye, collected the liquid which exuded from it, and then applied it with avidity to its mouth. These two bats lived a long time after they were deprived of sight. Two long-eared bats—the one blind and the other having the perfect use of its eyes—were let loose together: the blind one always followed its companion, even observing the smallest sinuosities of its course: the bat which saw passed between the twigs with less delicacy than the blind one. De Jurine then extended a net with large meshes, first making a breach in it: the bat which saw passed through it immediately, but the blind one stopped short, went all over the net, and, having found the hole, passed through without touching it, and then joined his companion, which it afterwards followed wherever it flew. Of what use (says M. de Jurine), then, is sight to the bat? and what is the organ which supplies its place? He then extended his experiments to the organs of hearing and smell. Having put a small hood on a long-

eared bat, it immediately pulled it off and flew: he stopped up its ears with cotton, but it soon freed itself of this. He then put into its ears a composition of turpentine and wax: during the operation the animal showed a great deal of impatience, and flew afterwards very imperfectly. He then poured liquid pomatum into the ears of a bat which enjoyed its sight: it appeared to be much affected by this operation, but when the substance was removed it took flight: its ears was again filled and its eyes taken out, but it flew then only in an irregular manner, without any certain or fixed direction. The ears of a horse-shoe bat which had the use of its sight were filled with tinder mixed with water: it was uneasy under the operation, and appeared afterwards restless and stunned, but it flew tolerably well: on being blinded, it rushed with its head against the ceiling, beat the willow-twigs with its wings, and made the air resound with the strokes which it gave itself on the muzzle. This experiment was repeated on other bats with the like effect. The tympanum of a large horse-shoe bat was pierced with a pin: the animal suffered much from the operation, and fell down in a perpendicular direction when thrown into the air: it died next morning. The same result was produced on piercing the tympanum of a long-eared bat with a needle. M. de Jurine then made accurate researches on the difference between the organization of the brain of these two kinds of bat, and found, after a careful dissection, that the eye of the long-eared bat is much larger than that of the horse-shoe bat, but that the optic nerve is proportioned to it. The outer portion of the ear of the former is much larger than that of the latter, but the interior part is smaller. The horse-shoe bat has a greater extension of the organ of smell, and when about to take flight it agitates its nose much more than the long-eared bat. From these experiments M. de Jurine concludes, first, that the eyes of the bat are not indispensably necessary to it for finding its way; secondly, that the organ of hearing appears to supply that of sight in the discovery of bodies, and to furnish these animals with different sensations to direct their flight, and enable them to avoid those obstacles which may present themselves. Connected with these and similar experiments, we find the names of Spallanzani, Professors Vosalli at Turin, Rossi at Pisa, and M. Spadone at Bologna. Spallanzani, to convince himself on this subject,—not content with either burning the cornea with a red hot wire or pulling out the pupil with a pair of small pincers,—covered the wounds with pieces of leather, that the light might have no influence whatever on the remains of the organs which had been destroyed; yet with all this cruelty they flew just the same as if they had enjoyed their eyesight, and showed themselves as bold and lively in their flight.—*J. McIntosh; Milton Abbey, May, 1850.*

White Variety of the Polecat.—Towards the end of March a pure white variety of the polecat was trapped in the vicinity of Otmoor, Oxfordshire. As some of your correspondents seem to look upon the polecat as a rarity, I will take this opportunity of observing that in this county it is one of the commonest species of vermin. In size these animals vary much, but with this single exception I have never seen any material difference in their colour.—*A. Matthews; Weston-on-the-Green, April 15, 1850.*

A Story about a Cat.—One would hardly imagine that an animal so usually unsentimental as a cat would ever be found to exhibit feelings of affection so lively and enduring towards another of its own species,—sensibilities in short so *human*,—as actually to die of grief on the death of the object beloved: but that it may be even so, I think the following tragic little tale will at least show to be probable. I knew

well all the actors in the melancholy drama, both cats and humans; and to my own mind, at any rate, it is clear that at least *one* cat has died a prey to a "broken heart." There were, a very few years ago, in the family of an intimate friend of mine, two cats; one known by the familiar name of Tom, the other—the heroine of my story—undistinguished by any further appellative than the household cognomen of Pussy. Now Tom was much the elder of the two, but for years past he had lived in most exemplary conjugal harmony with Pussy, who had been to him all her life a faithful and affectionate partner, and borne him whole heaps of litters of lovely kittens. In most connubial peace and contentment they shared the kitchen hearth, occupying with decorum their station in the household society, and regarded by all the servants with highest respect and good will. But as time wore on, poor old Tom began to show symptoms of wearing out: decrepid, rheumatic and stiff, with a coat that showed as though it were moth-eaten, red about the eyes, limping and querulous, life it was evident was failing him, and the little span that remained to him was a burden. And hence it came to pass, one winter's day, that orders were issued to John that poor old Tom should be shot: straightway the merciful death-warrant was obeyed, and in a few hours poor Tom was dead and buried. Now John had no sort of idea that Puss had witnessed her husband's execution; and Puss, at meal times, had been accustomed to sit on John's lap, Tom usually affecting in preference the society of Cook; but from this day forward, for the brief remainder of her existence, she never would go near John: and, wonderful to tell, she steadily refused all food and all comfort, save that—after many days fasting—she was induced to eat one very little mouse; and she sat, day after day, even in the frost and sleet and rain, upon the grave of her departed Tom.

"Still, still she thinks

She sees him, and indulging the fond thought,
Clings yet more closely to the senseless turf."

And so she pined and wasted away for above a fortnight, and so at last Puss died. When last seen she was evidently in a dying state, but her body was never found: she had crept away to some corner to die unseen.—*Arthur Evans; Market Bosworth.*

[I have just heard of the lamented death of the kind-hearted writer of this contribution.—*E. N.*]

The Birds of Melbourne. By J. J. BRIGGS, Esq.

(Continued from page 2796).

Common Redshank (*Scolopax calidris*). Appear here in winter in very small parties, consisting of two or three pairs. They are extremely vigilant, and when disturbed utter a loud, shrill whistle, resembling that produced by human lips. They retreat as spring approaches.

The Common Sandpiper (*Totanus hypoleucos*). A very regular summer visitor to the banks of the Trent, where it frequents shallow

beds of pebbles, or the muddy parts of the shore. As it flits along the margin of the river, in a semicircular manner, and uttering at the same time its peculiar low, pleasing whistle, it forms a very pretty addition to the numerous animated beings that enliven the waters. It is difficult to ascertain upon what food they subsist. When alighting from their short flight, they always settle under the bank close to the water's-edge; and if approached unperceived, may be seen thrusting their bills into the mud in a curious manner, like the snipe, yet if the holes they have been boring are dug out, neither worm nor insect can be distinguished. Whether or no this bird ever breeds here, it is difficult to say, but I feel confident that it does, although after considerable search through numerous years *I have never found an egg*, nor can I hear of any other person who has ever obtained eggs. But why should the bird come here year by year and stay during the breeding-season, unless its object is to nest? I have also a bird in my possession, shot whilst carrying a piece of moss in its bill, which probably was being carried to the nest, as it occurred on the 8th of May. On the 25th of May, 1845, I observed a sandpiper fly out of a hole by the Trent and found a nest (but no eggs); and on August 2nd, 1843, and August 11th, 1845, I observed parties of young sandpipers playing about the eel-beds on the river, in company with their parents. These circumstances seem to warrant the conclusion, that a number of young birds are reared here annually. Sandpipers may occasionally be seen running nimbly along the turf by the margin of the Trent (like the peewit), or standing stretching themselves and ruffling their plumage, in a very particular manner. These birds appear from the 7th to the 18th of April, and usually depart about the middle of September, but I observed one so late as October 10th, in 1849.

Black-tailed Godwit (*Limosa egocephala*). A solitary individual has been shot occasionally on Sinfin Moor, a tract of country which, before it was drained, was a very favourite haunt. They were accounted a choice dish for the table.

Bar-tailed Godwit (*Limosa Lapponica*). One, in its winter plumage, was shot in the meadows near Swarkeston, about six years ago.

Woodcock (*Scolopax rusticola*). A few brace of woodcocks visit us most winters, arriving generally about October 6th; but on one occasion a woodcock was killed here so early as the 1st of September. In 1844, two brace and a half were killed about the woods on the common; a pair of them during the third week in September. They usually depart towards the end of February, but I remember that

when running through Staunton Pool Tail, the Marquis of Hastings' fox-hounds once disturbed one of these birds so late as the 14th of April. The Rev. Charles Bury, of the Isle of Wight, has pointed out in the 'Zoologist' the fondness of birds for particular localities, although others, apparently, more suitable to their habits exist in the neighbourhood. In Gôrstey Leys, a fine wood, on the borders of this parish, the woodcock is almost sure to be found; and why these birds should prefer a patch of high level ground, covered with brushwood, to the vicinity of springs and oozy parts, as in other woods, I am at a loss to find out. Beat over the five hundred acres of cover, and not a woodcock will rise, but come to that particular spot, as unfit for woodcock as ever haunt could be, and if one is to be met with it will be flushed there. Go to certain pieces of sedge, and not a snipe will ever be found in them, but beat over others precisely the same, to all appearance, and one will certainly get up.

Great Snipe (*Scolopax major*). An occasional visitant in the autumn, but I have never known it seen here in any months except September and October. A pair was observed in the marshy parts near Anchor Church, bordering on the Trent, in September, 1846, by a person who has shot them occasionally. They prefer reed-beds and the most lonely and retired parts.

Common Snipe (*Scolopax gallinago*). Snipes are met with in the greatest abundance hereabouts after floods (which occasionally occur on the Trent) are gone down, for the sides of the small creeks and streams communicating with it, after having been flushed with water, are soft and muddy, and offer a great inducement for these birds to visit them. They probe in the soft mud and oozy parts, in order to find out small insects and occasionally worms, and leave holes like those bored with a gimlet. Before the upper end of Melbourne Pool was drained, snipes were found there in abundance, and I have been told that, on one occasion, twenty brace were killed there in one day. In average seasons, the earliest snipes come down to us somewhere between the last week in September and the second week in October, and keep coming and going, according to the state of the weather and other circumstances throughout the winter. In the remarkably mild winter of 1846 very few snipes visited us. In the summer of 1845, I took particular notice that the common snipe frequented the river Trent (and more especially during the months of July and August), which has frequently been the case in former summers. This circumstance I consider extraordinary, as in no instance that I am aware of has either a nest, eggs, or young birds been found. It

seems to remain with us for the express purpose of breeding, and yet not do so ; for I think, if it did, the fact could have escaped observation year after year.

Jack Snipe (*Scolopax gallinula*). Mr. Yarrell, in his 'British Birds,' acquaints us, that instances of the jack snipe remaining in England during the summer are very few. On August 18th, 1845, whilst examining some refuse vegetation by the side of the Trent, a jack snipe rose from underneath it, almost within reach of my hand, but after taking a short wheel round, dropt again into the herbage. Within three hundred yards of the same spot lower down the stream two more birds got up separately, but soon dropt down again. I have no doubt that they were migratory birds, induced to come so early by a flood which had just occurred on the Trent. In the mild winter of 1846 no jack snipes came.

Dunlin (*Tringa alpina*). In December, 1844, a couple of dunlins were shot near the Trent: they were called sea snipes.

Landrail (*Rallus Crex*). Probably, throughout its whole geographical range, the landrail exists nowhere in greater numbers than along our part of the fertile valley of the Trent. This circumstance may easily be accounted for, when it is considered that the three things most requisite for the existence of the bird (food, quietude, and concealment) are there very readily met with. Soon after the arrival of the bird in this country, the meadows lying along the margin of the Trent are closed for mowing grass, to which it repairs and lives almost throughout the breeding season in the most uninterrupted retirement, faring deliciously upon the slugs, snails, and insects, which the long, moist grass affords. During the first week in May they drop in here by single birds, and about the second begin to pair. At this period they are easily killed, more especially the females, who are decoyed within gunshot by the noise of a rude instrument resembling a child's rattle, and very similar to the harsh "crake, crake" made by the bird. Supposing the notes to proceed from the male bird, the female draws near, and is killed by the person who is in pursuit. Landrails usually leave this neighbourhood towards the fourth week in August, as soon, however, as the harvest is gathered; but I have known individuals killed occasionally during the first week in September, by gentlemen when sporting. The latest birds killed here have occurred on September 1st, 3rd, 4th, and October 1st, in different years. The landrail, owing to the tapering, elongated form of its neck and shortness of tail, is admirably adapted for making quick progress through the stems of corn and grass, and before a dog I have known it run with

almost incredible swiftness. The male bird serenades the females during all the nights of the summer months, commencing with great regularity about eight o'clock, and ending about twelve or one. So closely do the females sit upon their eggs during the season of incubation, that mowers frequently shave off their heads with a scythe, or unavoidably cut them on the body. Like the partridge, the landrail leads her brood from the nest almost immediately upon quitting the shell; and I have seen an instance in which the old dam has feigned to be a wounded bird, in order to divert the intruder from her treasure.

Water Rail (*Rallus aquaticus*). I am inclined to believe, that with us the water rail is to be found in very limited numbers throughout the year, but at the same time it is very evident, that during severe winters we have other visitants arrive, I suppose from the North. This bird is one of my choicest favourites, and consequently I have studied his habits with assiduity whenever any opportunities have presented themselves for so doing. During some Siberian weather which occurred in the winter of 1844, we were visited by a considerable number of water rails, and owing to the peculiarly easy manner in which they were captured, many were taken. They frequented the small dykes and drains where rushes or flags grew, and which the frost half sealed with ice. Upon being sprung, they flew low, with their legs hanging down, making slow progress on the wing. Indeed, they seemed completely incapacitated for taking a high flight. One which I put up from Oldbrook Course, made a desperate effort to clear an adjoining hedge, but failed in the attempt, brushing itself against the thorns and falling down backwards, when it was secured. A second was killed by a boy with a stone; a third by another with a stick; a fourth was caught by a dog alive, and although there was plenty of water at hand, the bird neither attempted to dive nor to rise on the wing, but ran very swiftly along the muddy margin of the brook: they can also run along ice with great rapidity. In many mild winters no rails are seen. When handled in the feather, they seem lean and out of condition, but when pulled for the spit (whether it be during winter or spring) they are usually found to be full of fat, and if cooked before the fire with a toast under them, the flesh is delicious. A good bird weighs six ounces. In one instance only I have met with this bird so late here as the month of May: it appeared shy and vigilant. When killed, the crop contained only the remains of a few aquatic insects, but the bird was in

such a remarkable fine condition, that the interior was coated with fat of a peculiar oily nature, which whilst preparing the skin for preservation oozed forth, and followed the dissecting instrument at every incision. One instance of the water rail breeding here, was related to me by a gentleman who was observant of the fact. A few summers ago, he killed two young birds not quite fledged, near Melbourne Pool, which had evidently been bred there amongst the long, aquatic herbage, which must have afforded them an agreeable retreat.

Moorhen (*Gallinula chloropus*). Many moorhens inhabit a particular rushy creek: I notice that when it is flushed with water, the birds will occasionally raise their nests, so that they may just ride above the water; but whether those nests contain eggs at the time of being raised, I have never been able to ascertain, owing to the peculiar treacherous nature of the soil by which they are surrounded.

Common Coot (*Fulica atra*). Breeds.

Bean Goose (*Anser segetum*). An occasional visitant to the Trent.

White-fronted Goose (*Anser albifrons*). Individuals have been shot off the Trent in hard winters. It has long been kept in confinement on an ornamental pool in Melbourne Gardens, and appears to thrive well.

Brent Goose (*Anser Bernicla*). In January, 1841, the Trent being half frozen over, and the ground covered with snow, we were visited by a flock of the brent goose, which in size, resembled a small wild duck. One which was killed could not have weighed more than two pounds. The notes to which they gave utterance, were like the sounds of bells chiming in the distance, and were somewhat musical.

Canada Goose (*Anser canadensis*). 1849. During the second week in May, a pair came and settled on Melbourne Pool, evidently with the intention of breeding on one of the islands in the middle of it, but departed in a short time, probably on account of the situation not being sufficiently retired.

Hooper (*Cygnus ferus*). Appear here at intervals, towards Christmas, probably when frosts have sealed up the northern streams. They may be observed passing over in teams, of from five or six to thirty birds, during the months which occur between November and March; and the writer, on one occasion, had the satisfaction of meeting with a flock of twelve birds enjoying themselves on the Trent. As they appeared but little alarmed, he crept within rifle-shot, and beheld them sailing about the water's surface in a most majestic man-

ner; their plumage (like the driven snow) contrasting beautifully with the dark blue colour of the stream. When affrighted, they rose in a mass, and as they proceeded, gradually fell into line, and kept up a loud, sonorous, trumpet-like clang until they disappeared from view.

Bewick's Swan (*Cygnus Bewickii*). In February, 1845, some gentlemen were wild-fowl shooting on the Trent, and fell in with a flock of eleven, two of which were brought down, and one escaped. The bird which was killed measured 6 feet 3 inches between the tips of the wings, and 4 feet from the bill to the end of the tail; its weight being 10 lbs. It was preserved by Mr. F. Green, Bloomgrove, Radford, Notts.

Mute Swan (*Cygnus olor*). April 17, 1848. Two swans have built a nest on a rushy creek near the Trent, and the female is now sitting on eggs. The male amuses himself with rowing about the river, but takes his turn at hatching the eggs occasionally. It is laughable to see his anxiety when anything approaches the nest; he rows backwards and forwards in a most excited attitude,—his head thrown proudly back between his wings, and bristling his feathers in a menacing and most hostile manner, evidently considering himself monarch of a domain where no other animated being has a right to intrude. They have shown considerable forethought in building their nest, which they have raised to a great height above the surrounding herbage, in order that the floods which flush the creek may not disturb it. An unusually high flood occurring, I was anxious to see their fate, as I supposed the waters would overwhelm their habitation, but the swans had proved right in their calculation, and the nest stood securely just above the level of the water. When swans have perceived the river or pool rising by which their nest is situated, they have been observed to instantly commence raising it with flags and rushes, and make it so high that the water would not touch the eggs. I have twice had an opportunity of witnessing a similar provision just before wet fell, after a dry season. Indeed, some people, when they see a swan busied about the operation, go so far as to prophesy that in less than twenty-four hours rain will fall.

J. J. BRIGGS.

Melbourne, Derbyshire.

Occurrence of the Osprey (Pandion Haliaetus) in Northumberland.—A female osprey was shot on our sea-coast, near Hartley, on the 30th of April last.—*T. J. Bold*; 42, *Bigg Market, Newcastle-on-Tyne, May 2, 1860.*

Longevity of a Magpie (Pica caudata).—In the 'Hereford Journal,' a week or two ago, I found the following, which is worthy (if true) to be recorded in the 'Zoologist,' as it may serve to elicit further information on the subject. It runs thus: "On Sunday last, a tame magpie, in the possession of James Godsall, baker, of this city, died at the age of twenty-one years."—*J. Mc'Intosh.*

Male of the Great Spotted Woodpecker (Picus major) in the Plumage of the Female.—A specimen of *Picus major* was shot on the 1st of May, in Prestwich Wood, about three miles from Salford. The person who shot it stated that a pair were building their nest in a hole of a large tree, and he believed he had shot the female. In preparing it for the Museum, I made a careful examination and dissection of the body, and to my surprise found it to be the male bird in the plumage and distinctive markings of the female. There is not the slightest tinge of scarlet about the occipital feathers. I have remarked many instances in which this occipital colouring in the male is reduced to a slight red tinge on three or four feathers alone, so that it may really often occur (as in my specimen) entirely without them.—*John Plant*; *Salford Borough Museum, May 3, 1860.*

Anecdote of Martins (Hirundo urbana).—An incident relative to the nesting of the martin took place under my own observation, and may be worthy of recording in the pages of the 'Zoologist.' In the summer of 1836 two of these birds made choice of a place under the eaves of a tiled house, where the nest was built, the eggs laid, and the young hatched; but then a season of such wet weather set in that the mud nest of the martin was so moistened that it lost its adhesive property, and one fragment after another fell to the ground, until the half-fledged young could be seen clinging for their lives to the remnant still left. It became an anxious moment, not only for the old birds,—who kept flying round the dwelling, uttering a doleful plaintive noise,—but also for the gentleman residing in the house, who had taken great interest in the proceedings of his tenants, and who now feared that the remnant of the nest would fall, and the objects of his care be dashed to pieces on the pavement beneath: he was resolved if possible to prevent such a catastrophe. Many means were thought of, and, while the rain descended in torrents, a ladder was brought and placed against the house; then, with a hammer and some nails, he succeeded in fastening a piece of strong cloth around and underneath the young, forming a kind of bag, in which they were preserved from destruction. Scarcely was the ladder withdrawn, when the parent birds fluttered around their repaired dwelling, and in less than five minutes they became inspired with confidence, and entered the repaired residence for the night, for it was then almost dark. Early in the morning they commenced their building anew, and with mortar they closed every aperture in the cloth: they reared their young in security. In the autumn they left with others of their tribe; but in the following spring, when scarcely a martin had been seen in the neighbourhood, a loud chirping or chattering noise was suddenly heard about the house, when, on looking around to see from what quarter it proceeded, to our great pleasure we beheld the old nest beset with martins,—without doubt the brood which had been reared there the previous year; and from their loquaciousness and fluttering movements, it appeared quite evident that the feelings of former associations were recalled to memory, and joyous delight was experienced that they had again visited the land and place that

gave them birth. But let it be observed, that the experiment of building in a place subject to such a calamity was not repeated: there was no nest the following year: experience had taught them wisdom.—*William Allan; Bishop Auckland, April 15, 1850.*

Occurrence of the Night Heron (Ardea nycticorax) near Helston.—I received this afternoon, from the Rev. Canon Rogers, of Penrose, near Helston, a specimen of this bird, killed on his grounds. The number of occipital plumes varies from all the examples I have examined hitherto, in being four instead of three: they are, however, only half the usual length, but in other respects the plumage is adult, although the specimen itself is small; probably a female.—*Edward Hearle Rodd; Penzance, April 29, 1850.*

Occurrence of the Gannet (Sula Bassana) near Bury St. Edmunds.—A gannet, in the plumage of the second year, was killed at Culford, near Bury, in December, 1844: it was from some reason or other unable to fly, but made a stout resistance to being caught. Another bird of the same species was seen in the neighbourhood a few days after. A third individual, in the plumage of the first year, was shot on Icklingham Heath, the beginning of last November: being only winged, it fiercely attacked a dog which ran up to it, and which it would probably have mastered had it been left to itself. It is rather singular that three specimens of a species of such maritime habits as this should have occurred, in so short a space of time, so far inland and within such a little distance of each other.—*Alfred Newton; Thetford, February 2, 1850.*

Occurrence of the Hoopoe (Upupa Epops) near Penzance.—I mention the occurrence of this bird for the purpose more particularly of recording the date of its arrival than for its rarity, as seldom a season passes without some examples being obtained in this district. The bird now under notice was killed within three miles of this place, on the 4th instant, and was observed a week before.—*Edward Hearle Rodd; Penzance, April 29, 1850.*

Occurrence of the Masked Gull (Larus capistratus) on the Dart.—A specimen of that rare bird, the masked gull, was shot on the river Dart, in December last. It was an adult bird, in winter plumage, agreeing exactly with Mr. Yarrell's description. It was preserved by Mr. Burt, of the Torquay Museum, who says that its dimensions also agree exactly with those given by Mr. Yarrell on Mr. Heysham's authority ('British Birds,' iii. 431), so that there can be no mistake as to the identity of this bird, notwithstanding its resemblance—especially in the plumage of this season of the year—to the black-headed gull. The sex of this bird was not ascertained.—*Alfred Newton; Elveden Hall, Thetford, February 1, 1850.*

Singular Habits of Limax filans.—A short time since I noticed in a greenhouse, where I grow a collection of the Cape species of Pelargonium, a small slug, which at first I thought was hanging entangled on a cobweb. On a closer examination, however, I found that the slug was suspended by a thread of its own making, composed of the slimy matter which covers the body in this class of animals, and that it was gradually descending head foremost to some plants placed on a stand below. The thread was no larger than a stout cobweb, and uniform in size, except close to the

body of the slug, where it was sensibly thicker. I noticed my interesting acquaintance descend several inches in a few minutes; and when it had completed a suspending-thread of fully 18 inches in length, I quite unintentionally put a stop to its progress, by examining its outstretched eyes too closely with a magnifying lens. After this affront the slug commenced a retreat, which it set about by curving the head portion of the body upwards and inwards, until it touched the hinder portion of the body, a part of which it actually climbed up, and then took to the suspending-thread, advancing up the thread several inches with great facility, although the thread at the time was oscillating considerably with the draught of air through the greenhouse. Being pressed for time, I was here obliged to give up my observations on the slug's movements, but not before I had tested the strength of the suspending-thread, which I found was strong enough to support a weight much greater than that of the slug, and it was so elastic as to stretch considerably in length before breaking. The slug, when fully stretched out, was rather more than an inch in length, and about the size of a small goose-quill. The colour of the head was rufous-brown; the body brownish gray, paler beneath. I believe this slug is named *Limax filans*, and that its peculiarities have been described; but as it is of rare occurrence in this country, I have drawn up this short notice of its appearance, thinking it might be interesting to British naturalists.—*W. Wilson Saunders; East Hill, Wandsworth, May 7, 1850.*

Capture of Spilonota pauperana in Darenth Wood, Kent.—I have taken a considerable number of this little-known Tortrix in the above locality, on the 14th and 15th of April last. It has long been considered a great rarity, a single worn specimen existing in Mr. Bentley's cabinet, and very few others being known. It was erroneously described by the late Mr. Haworth as the *Paykulliana* of Fabricius; but Mr. Doubleday has found that that insect is perfectly distinct, and that the present species was first described under the name of *pauperana*, and that name has been adopted by Duponchel and Doubleday.—*P. Boucard; 7, North Conduit Street, Bethnal Green Road, May 1, 1850.*

Observations on the Stylopites and their Affinities. By FREDERICK SMITH, Esq.,
Curator to the Entomological Society.

THE economy and affinities of the *Stylopites* constitute so interesting a problem that the attention of naturalists has been repeatedly directed towards their elucidation. The singular economy of these insects has indeed been in a great measure satisfactorily investigated. As far back as the year 1810 their larvæ were observed by Klug, who supposed them to be parasites on the larvæ of *Stylops*: they have since that time been observed by several naturalists of our own country. Mr. Westwood in the 'Transactions of the Entomological Society,' vol. ii. part 3, describes the larvæ as parasites of *Stylops*; throwing out a suggestion of the possibility of the supposed pupæ being the females, and the little hexapods the young of *Stylops*: the latter idea,

however, he rejects, as being opposed to many apparent anomalies. That such, however, is the fact, Dr. Siebold has—by anatomical investigation—satisfactorily proved; and Mr. George Newport, in one of the most complete and valuable essays on the subject, has confirmed Dr. Siebold's discovery. In the essay in question will be found many important additions to our previous knowledge of the Stylopites, and a learned and elaborate examination of their affinities to the genus *Meloe*. The affinities, however, between the Stylopites and the Coleoptera, were first pointed out by Mr. Shuckard, in Lardner's 'Cyclopædia,' 1840; his opinions being based upon an examination of certain anatomical peculiarities which may be met with scattered throughout the Coleoptera, Stylops being an instance in which such peculiarities are accumulated.

In 1847 Mr. Newman published (Zool. 1792) the first part of an "Essay on the Affinities of the Stylopites," which he has concluded during the present year (Zool. 2684). In this essay he enters minutely into the positive and comparative anatomy and metamorphosis of these insects, and deduces the inference that they are strictly Coleopterous: in supporting this opinion the author has evinced extensive research, and has brought his usual acuteness of observation and profound reasoning powers to bear on the subject under discussion.

In the investigation of so difficult a subject, a variety of doubts will arise as to the natural situation of these insects. I am myself, however, of opinion that their natural position is amongst the Coleoptera; there is nothing in the peculiarities of their structure opposed to such a conclusion: their imperfectly developed oral organs are adapted to all the requirements of their brief span of existence, the only object of which appears to be the perpetuation of the species, and a period of two hours being the extent of its ephemeral duration. The fact of the female being apterous coincides with the condition of that sex in various species of Hymenoptera; her producing living young is in accordance with the economy of the Aphides, and also of Hippoboscæ. The larvæ of Stylops, on being developed from the egg, in being active hexapoda, are similar to those of *Meloe*, *Sitaris* and *Cantharis*, and this similarity in all probability extends to *Horia*, for I have found a similar minute hexapod on a South-American *Xylocopa*. I am therefore induced to adopt the opinion held by those distinguished naturalists, Messrs. Shuckard, Newport, and Newman: the latter entomologist has—by a collection of facts and by his logical deductions—placed the subject in so clear a light, that unless some important and indisputable discoveries are made which prove his conclusions premature, the claim of Stylops to a place among the Coleoptera will be admitted.

The following are the genera of Hymenoptera which I have observed to be infested by the different genera of Stylopites: *Spheg*, *Ammophila*, *Odynerus*, *Eumenes* and *Polistes*; *Hylæus*, *Halictus* and *Andrena*.

I have observed that Styloped bees are the first to make their appearance in spring; amongst the summer and autumnal species of *Andrena* I never met with one so infested; whereas in *Halictus* I have captured individuals attacked by the parasite in July and August, about the time when the second brood of *Halictus* appears: were not this the case the continuation of species must cease, supposing *Halictophagus* to be parasitical on this genus alone. I possess several individuals of the *Halictus nitidusculus* of Kirby infested by these parasites,—one with two of the females protruding from the interstice between the third and fourth segments: this bee is about two lines and a half in length; how minute must be the winged parasite! a glass

of considerable power being required to detect the apterous females. So many interesting particulars are connected with the development of the parasites and their victims, that every fact should be carefully recorded.

From the observations which I have made it appears that the eggs of *Stylops* do not arrive at maturity until fourteen or sixteen days after the impregnation of the female. On the 27th of April, 1849, I captured a female of *Andrena Trimmerana*. I observed the bee struggling and turning over and over on a gravel pathway, and picked it up: in doing so I observed a small insect take its flight, evidently from the bee: this I have no doubt was a male *Stylops*, its flight and white appearance exactly agreeing with Mr. Dale's description: unfortunately I could not succeed in capturing it. On examining the bee, I found a cocoon remaining between the abdominal segments, the cap of which was pushed off: this I recognised as being the cocoon of a male *Stylops*: the bee was also infested by two females. In fourteen days from the time of capture the little hexapods began to appear, at which time the bee died: these minute larvæ I found had the power of existing without food from six to eight days in confinement, and would probably have lived even longer in their natural position. These parasites do not appear to infest any of the very pubescent species of bees, but there is one remarkable peculiarity worthy of observation: when the bee attacked is one of a species which undergoes its metamorphosis and arrives at the perfect state in autumn of the same year, passing the winter in a dormant state, the parasite undergoes its changes simultaneously with the bee; and in the case of such species as pass the winter in the larva state, the development of the *Stylops* is also retarded until the final change of the bee takes place, both arriving at maturity at the same period. Of the genus *Halictus*, I have met with infested individuals both in spring and autumn; so that of the genus *Halictophagus* there must be two broods in one season.

The first stages of development in *Stylops* will probably ever remain a mystery; the exceedingly minute size of the larva—too small to be observed by the naked eye—will probably render observation impossible. I should myself incline to the opinion that it is at all periods of its existence carnivorous; and probably it will be found that its allied parasite, *Meloe*, is on the contrary at all times herbivorous, at least feeding on vegetable productions,—on pollen in its larva state, and on *Ranunculaceæ* in its adult condition: this however requires proof. I have myself more than once endeavoured to clear up the matter, but hitherto without success: I am, however, about to renew my experiments. Mr. Newman records (*Zool.* 1801) the results of his experiments, in observing the development of the eggs of *Meloe*: he says, "I watched the eggs day by day, and at last had the satisfaction to see them produce minute active little larvæ; in fact they were the *Triangulus Andrenatarum* of Dufour and the *Pediculus Melittæ* of Kirby." I have on several occasions reared the larvæ, but I never found the *Pediculus Melittæ* developed. Were Mr. Newman's larvæ the black *Pediculus* of Kirby? or the bright orange larvæ described by Mr. Newport as those of *Meloe violaceus* and *M. proscarabæus*? which never become black, and which in fact are much smaller than the *Pediculus*. This *Pediculus Melittæ* is with me a perfect enigma. I find it very abundant at Hampstead in flowers, and also on bees. It does not appear to be the larva either of *Meloe violaceus* or of *M. proscarabæus*, the only two species found in that locality: new what can it be the larva of? doubtless of some insect by no means uncommon: that it is not that of either of the species of *Meloe* I feel pretty certain. I have fed them with fresh flowers, and kept

them alive fourteen or fifteen days, without any visible alteration in colour or size; were not the larva of *Telephorus* well known, I might have been induced to imagine these little creatures to be the larvæ of that genus. Then comes the question, are they larvæ at all, or perfect insects? That they are not the larvæ of a *Meloe* I feel satisfied—and in fact they differ in some particulars in form—these are, however, slight, but they are subject to considerable differences of size; which is not the case in those actually reared from the egg of *Meloe*; they are also uniformly black, with reddish testaceous legs: those from the eggs are uniformly bright orange yellow, and have never been observed to change. Here, for the present, I leave the subject, in the hope that some fortunate moment will present itself, when the whole of this most interesting enquiry will meet with satisfactory elucidation.

F. SMITH.

11, Constitution Row,
Gray's Inn Road.

Postscript, May 11, 1850.—I have an observation to make concerning the *Pediculus* and the *Meloe* larva: a fortnight ago, this day, I captured specimens of *Melecta punctata*, on which I found the *Pediculus Melittæ*; since which time I have been three times at Hampstead, and although I have captured *Andrenidæ*, &c., in great numbers, I have not yet found a single yellow hexapod; in fact I do not think the larva of *Meloe* are out. I brought home a female *Meloe*, and she deposited shortly after on the same day: this was one of the first out this season, the weather not being previously suitable; yet I had searched most industriously: the larvæ are not yet developed.—*F. Smith.*

Capture of a new Saturnia (Saturnia Isabella) near Madrid.—A splendid *Saturnia* has been taken near Madrid, belonging to that section of the genus of which the well known *Bombyx Luna*, of North America, forms the type. The present species, however, more nearly resembles a North African species with shorter tails to the posterior wings. It is proposed to call this beautiful insect *Saturnia Isabella*, and a full description accompanied by figures will shortly appear.—*Edward Newman.*

Occurrence of Ceropacha flavicornis in Staffordshire.—On April, 2, 5, and 6, I captured ten specimens of *Ceropacha flavicornis* upon Cannock Chase. Nine of these were asleep upon some old park palings out on the open moor, with only two or three young birch-trees near them, and these very scrubby and stunted. At the distance of about half a mile are a number of birches in scattered clumps amongst the heather, and here I took another specimen clinging to a slender twig in what seemed a most uncomfortable position. This is generally considered a scarce species, but, perhaps, it may turn out to be merely local, as Mr. Hodgkinson has shown to be the case with so many reputed rarities. *Brepha Notha* (the *Parthenias* of Hübner, and, I believe, *Linnaeus*) which is always extremely abundant here, has this year appeared a full month later than is ordinarily the case with us, being only now at its height.—*W. S. Atkinson; The Vicarage, Rugeley, Staffordshire, April 15, 1850.*

[Near London, *Ceropacha flavicornis* is too common to require record.—*E. N.*]

Larvæ of Depressaria.—I was not a little amused to-day on receipt of the current number of the 'Zoologist,' to find that both Mr. Douglas and myself had been em-

ployed, during the last week of March, in taking larvæ of *Depressaria* from broom. While staying a few days in East Lothian, I took a number off the broom bushes in Presmenan Wood, in company with Mr. Hepburn: I have little doubt they are the same as those exhibited at the Entomological Society, by Mr. Douglas. They are elongate, depressed, livid brown, with darker head and shield: the body covered, under a lens, with small glossy warts, each bearing a fine hair. On the same day, we beat the full grown larva of a *Tortrix* from the leafless twigs of the birch.—*R. F. Logan, Duddington, May 4, 1850.*

Palpi of Micropteryx.—I have to-day taken several specimens of *Micropteryx subpurpurella*, and find Mr. Stainton is right in his conjecture that the palpi are not porrected when the insect is alive (see monograph of the genus, Ent. Trans.), but are almost entirely concealed among the hairs of the head.—*Id.*

Endurance of cold in Plutella fissella.—While walking with my father in Duddington Park, on the afternoon of the 6th of January last, everything being bound up in frost, and the temperature about 32° Fahr., he observed something move on the top of a paling, and, upon examining it more minutely, we found it to be a lively specimen of *Plutella fissella* of Stainton's 'Catalogue.' Having carried it home, I resolved to experiment a little on its powers of enduring cold; and accordingly placed it in a pill-box, outside the window, near a thermometer. In this position it remained for some time, and endured a temperature of 20° Fahr. without injury, and without even becoming torpid; as on shaking it out of the box on its back, it immediately regained its ordinary position, using its legs with ease and agility.—*Id., May 11, 1850.*

Micropteryx Calthella.—This little insect has again made its appearance with us. We have found it on the wood anemone (*Anemone nemorosa*), the bulbous crowfoot (*Ranunculus bulbosus*), on the marsh marigold (*Caltha palustris*) as usual, and on one of a distinct group of plants, the Compositæ, positively swarming on the dandelion (*Leontodon taraxacum*.) It still remains a mystery on what this pretty little gem feeds, while in the larva state. It certainly seems possible that some one or more of the *Ranunculacæ* may furnish it with food, but at present it is only possible. The insects captured by us have appeared in a grassy meadow, in some instances very far removed from *Caltha palustris*, though surrounded by *ranunculaceous* vegetation.—*Peter Inghbald; Storthes Hall, Huddersfield, May 18, 1850.*

Dryophilus anobioides.—On Saturday last, whilst brushing about in the hollow in Plumstead Wood, amongst heath and broom, I was fortunate to take this rare and interesting little insect which had so long been a desideratum with me. Finding it confined to one little spot, where I captured four specimens in about half an hour, I was induced to endeavour to trace out which broom-stump it frequented, remembering that Mr. J. F. Stephens, in his manual, records its capture on a broom-stump at Coombe Wood, in April, 1833. After a short time I found one all dead and dry, and perforated in all directions; I went carefully up to it and shook it into my net and was rewarded by one specimen, and two of *Hylastes rhododactylus*. I therefore at once took possession of the stump, which I broke into small pieces and brought home, and from it I have now bred four more specimens, and about six or eight of *H. rhododactylus*; this latter feeds under the bark in the larva state: the little round holes perforated nearly through the stem, are evidently the work of *Dryophilus*: the joints of the antennæ in the male are much longer than in the female, and the eyes more prominent. My friend, Mr. F. Smith, took one near the same spot in April, 1848, and another in 1849.—*Samuel Stevens; 24, Bloomsbury Street, May 17, 1850.*

Earwig using their Wings.—You ask for communications on the subject of the earwig using its wings (Zool. 2750): I do not think I ever witnessed an instance of the kind myself; but I well remember to have often heard my father say that once, and once only, he saw an earwig use its wings in flight. He was watching a carpenter at his work, and observing an earwig, he took up one of the tools with the intent to kill the insect; but as he was on the point of doing so, the earwig expanded its wings and flew away. I feel bound to add that I cannot positively say that this was the common earwig (*Forficula auricularia*), though I always understood it to have been so. If it were the lesser earwig, its using its wings was nothing extraordinary; for that insect, so far as my experience goes, is more frequently seen on the wing than otherwise.—*W. T. Bree; Allesley Rectory, May 18, 1850.*

Proceedings of the Linnean Society.

April 16.—R. BROWN, Esq., F.R.S., President, in the chair.

Mr. Marnock exhibited a remarkable specimen of the woody growth of mistletoe.

Mr. Miers read the conclusion of his paper on the Triuracæ. The most remarkable point in the structure of these plants was the undeveloped condition of the embryo in the ripe seed. After referring to the rhizanth and other orders in which the same structure is observed, the author came to the conclusion, that the proper position of the Triuracæ was amongst the class of endogens, and near such orders as Juncacæ, Alismacæ, Aroideæ, Potamæ, &c. Mr. Miers proposed calling the form of embryo which characterised the new order of Triuracæ, 'protoblastus.'

Proceedings of the Zoological Society.

Anniversary Meeting, April 29.—Sir G. CLERK, BART., V.P., in the chair.

The report of the auditors having been received, Mr. D. W. Mitchell (the Secretary) read the report of the Council. It stated that the fellows, fellows-elect, and annual subscribers, at the present time amounted to 1,665. The number of honorary and foreign members was 29; and of corresponding members, 155. Among the corresponding members the Society had to regret the loss of Sir T. Reade, Her Majesty's Consul-General at Tunis, who for many years was a liberal contributor to the Society, presenting them with many of the most valuable Carnivora and struthious birds. The revenue of the Society amounted in 1849 to £8,771 9s. 8d., being an increase of £606 8s. 5d. as compared with 1848, and of £1,005 14s. 2d. as compared with 1847. The Council regarded this result as conclusive evidence in favour of the measures commenced in 1848 for developing the resources of the Society, for the improvement of the managerie, and for the extension of the facilities for visiting it. The increase in the receipts at the gates in 1849, of £1,124 19s. 6d., as compared with 1847, justified the hope that this source of revenue would gladly resume the importance which it presented in the earlier period of the operations of the Society. The actual increase in the number of visitors in 1849, as compared with 1848, was 25,265; and it

was scarcely to be doubted that it would have been still larger but for the epidemic which prevailed in August and September. The report from the gates for the current year presented an increase in the receipts of £130, as compared with the corresponding weeks of 1849, and of £359 10s. 6d. as compared with 1848. The Council considered that the decrease of subscriptions had been checked as compared with the ratio of preceding years; and the decrease which for many years existed at the garden gates up to 1847 was not only determined, but the receipts were rapidly rising, and exhibited such a tendency to advance as more than counterbalances the decrease on the other heads of income. The recent liberal expenditure in buildings and the purchase of animals had not only been rewarded by the re-establishment of the celebrity of the collection, as the finest public vivarium in Europe, but had enabled the Council to create a considerable source of income in the disposal of duplicates—the most desirable specimens being invariably preserved for the menageries. The memorial to the Commissioners of Woods and Forests had met with attention, and the rent of the gardens is reduced to £337, whereby a saving of £167 per annum is effected. The comparison of expenditure with income is, however, still unfavourable, if the outlay on new buildings was not considered rather as a change of investment than expenditure—that expenditure having brought the establishment to a state of efficiency and attractiveness which the Council believe will obviate for a considerable time the necessity of further building operations beyond the works now in progress. The buildings completed during 1849 were of the most important kind for the preservation of the collection, and in their advantages far exceeding the value of the annual dividend hitherto received on the capital employed. The ordinary expenditure of the Society might be taken at about £8,500; and there is, therefore, every probability that the increasing income of the Society will produce a surplus sufficient for all the purposes of a reserve. During the past year the additions to the museum of mounted specimens had been limited to such rare species as had died in the menagerie, and were not previously represented in the museum. Many duplicates had been presented to provincial institutions at Norwich, Ipswich, Dover, Worcester, &c.; and some valuable presents had been received from different individuals. Although no important additions have been made to the library by purchase, several desirable and valuable works had been added by donations, and by exchange for the publications of the Society from a variety of scientific institutions at Paris, Munich, Breslau, Göttingen, Philadelphia, Berlin, Stockholm, Van Diemen's Land, many distinguished scientific bodies in England, Ireland, and Scotland, &c., as well as from authors. The principal buildings executed during the past year have been a continuation of the new aviary, the house for reptiles, a large enclosure for gallatorial birds, the erection of a wing at the west end, and the commencement of one at the east end of the giraffe house, and the putting into repair other buildings connected with the gardens. In the gardener's department the Council had received various donations from the Horticultural Society, his Grace the Archbishop of Dublin, and other friends, and constant attention had been paid to keeping it in order. With regard to the menagerie, the Council had made great progress, and had been fortunate in obtaining the support of many additional correspondents. The collections of valuable animals presented by the late Pasha of Egypt and by the governor of Singapore, having been safely brought to this country about the same time, the menagerie might be considered as having reached its highest point of value in July last; and it was worthy of remark that the number of visitors in that month far exceeded the average

number of the last ten years. The Council had the satisfaction of announcing that H. H. Abbas Pasha had presented to the Society a hippopotamus, which he had assigned to the care of the Hon. C. A. Murray, who, in a recent dispatch, had described him as in good health, and as "tame and playful as a Newfoundland puppy." This animal might be expected to arrive in the course of next month, and could not fail to excite the most lively interest, no example having been seen in Europe since the decline of the Roman Empire. Mr. Duncan, the celebrated African traveller, Her Majesty's Vice-Consul at Whydah, wrote under date of September 14, to say that the King of Dahomey had promised to obtain him a young elephant and other valuable animals, but, unfortunately, owing to the sudden death of Mr. Duncan, the prospect thus opened was in abeyance, although no doubt the king would keep his promise to any future consul. The Council congratulated the Fellows on the interest which Her Majesty and Prince Albert had taken in the progress of the Society, of which they had obtained a knowledge by personal inspection; and which Her Majesty had evinced by presenting to the Society the principal portion of a present received from the Emperor of Morocco, consisting of a lioness, leopard, two ostriches, and two gazelles. During the past year the female aurochs and three bisons were carried off by pleuropneumonia, the scourge of horned cattle. The rhinoceros and African buffalo had also died, but as the former had been upwards of fifteen years in the menagerie, and the latter nearly as long, their longevity, rather than their decease, was to be remarked on. The health of the collection generally is attested by the beautiful condition, and by the numerous list of species which have bred in the gardens. The Council had great pleasure in announcing that, notwithstanding the long list published in 1848 and 1849, the Society had been able to obtain upwards of seventy new species, exhibited for the first time during the past year. The total number of visitors to the gardens in 1849 was 168,895; of these 33,998 were privileged, and 134,897 unprivileged, of whom upwards of 72,000 were admitted on Mondays.

After a short conversation, in which it was stated that the gardens would be opened to the public at the reduced price of sixpence throughout Whitsun week, except on Saturday, and that the band would play in the gardens on Saturdays during the months of June and July,—the report was adopted, and a vote of thanks given to the chairman for his exertions in obtaining a reduction of the rent.

Monthly General Meeting, May 2.—SIR G. CLERK, Bt., V.P., in the chair.

Samuel Gurney, Jun., Esq., and John Ingram Travers, Esq., were elected fellows.

W. H. Twentymann, Esq., Edward Lomax, Esq., and Dr. George Fripp, were proposed as candidates for the Fellowship.

The Report of the Council stated that the number of visitors to the gardens in April was 11,314, and that the receipts at the gate had only once been exceeded in the same month, during the last fifteen years. Among the additions to the menagerie are two specimens of *Phacochoerus Africanus*, the great African Wart-Hog, which will now be exhibited for the first time in this country.—D. W. M.

Proceedings of the Entomological Society.

May 6, 1850.—J. F. STEPHENS, Esq., V. P., in the chair.

The following donations were announced, and thanks ordered to be given to the donors: 'Isis von Oken,' Heft 3, 4, 8, 9 and 10: presented by Herr Zeller, Honorary Member. 'Entomologische Zeitung,' for March; presented by the Entomological Society of Stettin. Specimens of *Scleroderma cylindrica*, Westw., and *S. pedunculata*, Westw.; also pupæ of an *Odynerus* from Briars, and of *Hylæus*, by Mr. S. S. Saunders, in illustration of his memoir read at the last meeting.

The following gentlemen were balloted for and elected Members of the Society: Francis Walker, Esq.; Samuel Waring, Esq., of Norwood; and Alexander Murray, Esq., of Shenley, Herts. And the following were balloted for and elected Subscribers to the Society: Dr. Lowe, of Balgreen, Slateford, N. B.; Samuel Nevill Ward, Esq., of the Hon. E. I. C. Civil Service, Madras.

Mr. Shepherd exhibited two specimens of *Lobophora polycommata*, W. V., and an extensive series of *Micropteryx purpurella*, Haw., and *semipurpurella*, St., recently taken at Darenth Wood. Among the *semipurpurella* was one remarkable *albino* variety.

Mr. Stainton exhibited specimens of *Micropteryx purpurella*, *semipurpurella*, and *unimaculella* taken at West Wickham; he also exhibited nine species of *Ornix*, forming the *Meleagripennella* group of that genus, six of these were British, including one new species he had taken the preceding week in Devonshire; he also exhibited a specimen of *Bedellia Orpheella*, taken by Mr. H. Cooke, of Brighton, and stated that the specific name of this insect must sink, as it had been previously described by Zeller under the name of *Opostega somnulentella*; and he had likewise brought for exhibition a specimen of *Aleucis pictaria*, taken by Mr. Ellman near Lewes.

Mr. S. S. Saunders exhibited a female *Stylops* extracted from the abdomen of *Andrena Trimmerana*, after the death of the bee; also two male specimens of the same bee, one with a female *Stylops* in the abdomen, and the other with the exuvæ of a male visible.

Mr. J. F. Stephens exhibited three new species of British Micro-Lepidoptera, viz., *Stigmonota dorsana*, from Scotland; *Tinea Caprimulgella*, *Von Heyden*, and a *Depressaria*.

Mr. Adam White exhibited a new Coleopterous insect, forming a new sub-genus of the family *Languriadæ*, for which he proposed the name *Doubledaya viator*, in honour of the late Edward Doubleday, and read a description of it, of which the following is an abstract.

"Head decumbent, in front at the base of the jaws expanded and wider than the thorax. Thorax as wide as long, margined on the sides, bisinuate at the base, grooved down the middle. Legs very long, the two first pairs somewhat the longest, the femora and tibiæ compressed; tarsi very widely dilated, flat, all the joints wider than long.

"Head and thorax highly polished, ferruginous, the elytra of a pale ochreous red, and with from eight to nine thickly punctured longitudinal parallel striæ.

"This insect is a native of Madras, in the East Indies, the specimen described is unique in the collection of the East India Company."

Mr. Fortnum exhibited two species of *Locusta* captured near Frankfort, from one

of which a Gordius had extruded, and from the other a dipterous larva, both of which he also exhibited.

The following description, by Mr. Newman, of *Panorpa ruficeps*, a new species from New Holland, was then read.

PANORPA RUFICEPS.

Nigra, capite femoribusque ferrugineis; alis fuscescentibus immaculatis. (Alarum latitudo 1·4 unc. Corporis longitudo, 6 unc).

Antennæ much longer than the body, slender, gradually tapering to the apex, 57-jointed, the basal joint stout, its length and breadth nearly equal; the second, half as large as the first, its length and breadth also equal; the third, longer than the second and much narrower; the basal, second, and half the third joint are ferruginous, the remainder black: every joint, from the third to the fifty-sixth inclusive, has a short apical bristle on each side, and all of them are clothed with a short velvety down: the head, including the rostrum, is ferruginous excepting the eyes, a triangular spot which encloses the ocelli and the apex of the palpi, all of which are black. Thorax, abdomen, tibiæ and tarsi, black: coxæ and femora ferruginous, except the apices of the latter which are blackish. Wings immaculate, hyaline, suffused uniformly with brown, which is slightly darker on the nervures and stigmata.

Inhabits New Holland. The only specimen I have seen was taken at Port Philip, by Edmund Thomas Higgins, Esq., to whom I am indebted for the opportunity of describing it. The specimen will be deposited in the British Museum.

Some remarks by Mr. S. S. Saunders were then read, on the sense in which Dr. Siebold had used the words "banchseite" and "rückenseite," in his observations on the larvæ of Stylopidæ.

Mr. Douglas then read the following description of a new species of Tineidæ.

YPSOLOPHUS? PALUSTRELLUS.

Alæ anticæ luteo-albidæ, lineis ad margines radiatis punctisque duobus pone medium nigris. Alæ posticæ grisæ, ciliis lutescentibus.

Expansion of wings 9 lines.

Head and thorax ashy, with a black line continued on the centre of each; palpi ashy, second joint fuscous beneath, terminal joint faintly darker at the apex; antennæ fuscous. Anterior wings yellowish white, covered with black lines which radiate from the centre to the costa and inferior margin, and two black dots beyond the middle. Posterior wings griseous with luteous cilia.

This appears to be a species oscillant between *Ypsolophus* and *Gelechia*; by its palpi, however, the second joint of which is clothed with long porrected scales, it seems to be more related to the former than the latter genus.

Two specimens taken at Yaxley, one in Mr. Doubleday's, the other in Mr. Allis's collection.

He also read a continuation of his memoir on the British species of the genus *Gelechia*, including the following species, viz., *mulinella*, *Tis.* (reinterrupta, *Haw.*, non *H.*); *naviferella*, *Z.* (*Tinea* *Knockeella*, *Haw.*) *T. miscella*, *Haw.*, (*Microsetia* *aurofasciella*, *St.*); *fugitivella*, *Z.* (*fugacella*, *Sta.*, non *Z.*); *ligulella*, *W. V.* (*albistrigella*, *St. ?*); *vorticella*, *Z.*, a species closely allied to *ligulella*; *Hubneri*, *Haw.* (non *granella*, *H.*); *senectella*, *Z.*, a small dark species somewhat resembling

terrella; Inulella (Aphelosetia), *C.*; Gerronella, *Z.*; divisella, *Doug.* (allied to mulinella); Desertella, *Edleston.* (allied to terrella); Coronillella, *Tischer.* (allied to Anthyllidella, but larger); suffusella, *Doug.*; Mundella, *Doug.*; pernigrella, *Sta.* (reared by Mr. Gregson from larvæ, off sawfly); inornatella, *Doug.*; littorella, *Doug.*; immaculatella, *Doug.*; fumatella, *Doug.*; bifractella, *Mann.*: the twelve last species were hitherto unrecorded as British.—*H. T. S.*

Proceedings of the Microscopical Society of London.

May 15, 1850.—MATTHEW MARSHALL, Esq., in the chair.

Frederick Symonds, Esq., M. Waller, Esq., and Alexander Hett, Esq., were balloted for and duly elected members of the Society.

A paper, by P. H. Gosse, Esq., "On the Anatomy of Notomata aurita, an animal of the class Rotifera," was read. The animal now described is an inhabitant of our fresh waters, especially those which are still and accompanied with aquatic vegetation. It has received its name, aurita, from the circumstance of the instruments carrying the cilia putting on the appearance, when expanded, of ears on either side of the head of the animal. Mr. Gosse entered very minutely into a description of the anatomical details of this creature, particularizing the gizzard, stomach, ovary, the eyes, and some curious appendages which appear to be connected with it, and the various bands for producing muscular motion; from the nature of which he arrived at the conclusion that the class, Rotifera, should be placed higher in the system of nature than has hitherto been customary; and he considered them as belonging to the Articulata. He also mentioned the circumstance of his having discovered that some of them were certainly with the sexes in different individuals, agreeing in this respect with three species of Brachionus, which produce male and female young very distinct in appearance and structure.—*J. W.*

*Extract from the Correspondence of Mr. H. W. Bates, now forming
Entomological Collections in South America.*

(Continued from page 2793).

[Although the following Extracts from letters addressed by Mr. Bates to his friend, Mr. Brown, of Burton-on-Trent, unavoidably contain some repetition of matters before given, we think the new details they offer will interest many of our readers.—*E. N.*]

"Parà, June 17, 1848.

"We have been twenty days ashore, and are now settled at a spacious country house at the village of Nazarà, one mile and a half from Parà, close to the virgin forest: we intend to stay here three months, and then remove across the river for a few months. How

shall I begin to describe this strange and wonderful country ? Since we have been here we have been overwhelmed with the vast complication and abundance of the subjects we are come to investigate, and not a little confused by the strangeness of the language, the manners, mixture of races, and novel occupations of the people : the city is in a constant state of confusion from the rollicking propensities and religious amusements of the people ; fireworks, noisy music, processions, and jingling of bells, have been going forward almost every morning and evening. The climate is most delicious ; the thermometer is about 78° or 79° at sunrise, about 86° at the hottest part of the day, and 81° and 82° in the evening ; the mornings are most charmingly fine, but we get a smart shower in the afternoon about once in three days, this being the last of the rainy months. We sleep at night in hammocks, with no other covering than a sheet, and the windows of our rooms open ; at sunrise we walk out in our night-shirts into the fresh air, strip naked and wash. I am out in the sun all hours of the day without inconvenience, and wade through bogs, ramble through the moist woods, sail in canoe, and undergo all sorts of exposure with impunity, and have an amazing appetite. All Europeans enjoy good health here : the healthfulness of the place is a matter of the greatest astonishment to me, for the city is surrounded by marshes and ditches flooded at high water, and left bare and muddy at low tide. On first landing, the exuberance of life everywhere burst upon us at once ; in the streets, a moist, hot, earthy smell arose, and on the walls, scores of lizards were scampering about. The city consists of about a score of horribly paved streets ; beyond these, are most magically beautiful lanes fringed with palms, and utterly overgrown with most magnificent foliage : beyond these lanes are coffee shrubberies, and scattered cottages embosomed in them, each with a clump of bananas, and orange-trees overhanging : and still further on, the shrubberies merge into the original and impenetrable forest, this about two miles from the city. There are about 20,000 idle, jovial, and luxurious inhabitants ; yet I see scarcely any signs of cultivation : the earth and river produce all the necessities of life spontaneously. The European merchants and planters (which latter are very few) complain of the dearness of labour, and the impossibility of making the extraordinary riches of the country available.

“ Where are the dangers and horrors of the tropics ? I find none of them. Of snakes I have seen one, in an open common, and another, a Boa 15 feet long, which was being dragged through the streets by some Indians. The fact is, that every creature is so active and sensi-

tive here, that on the slightest rustling of the shrubs snakes dart out of the way. I have waded through boggy thickets in the woods, where the vegetation is rankest, and the glorious leaves of the plantain, the creeping pothos, and tangled masses of climbing plants form a canopy overhead; and I have scampered after insects over hot sandy banks quite fearlessly. The mosquitos do not give us any trouble, but the ants annoy us by running away with our specimens as we are setting them, and stinging our legs. Not being *au fait* with the language, I have had of course but little communication with the people yet, and have few adventures to relate. We have been living with an English merchant for about a fortnight: we are now in a house of our own, and are surrounded by people who speak nothing but Portuguese: the house is a beautiful place, forming a square; four spacious rooms, and a verandah all round: the total circuit of the latter is 280 feet, and the breadth 18 feet: this is the usual style of suburban residences here—house of course only one story, and tiled: there are about four acres of cleared ground round it, apparently choked up with weeds; but on close examination we find plenty of orange-trees, pine-apples, melons, several kinds of palm-trees, plenty of coffee and vegetables, and a few immense forest trees; one buttress-tree has a girth which takes ten men to span with extended arms. On the blossoms of ingà-trees close to the house, we watch the humming-birds fluttering, while at breakfast and tea: toucans, &c., come to the various trees, a Morpho now and then sails along the verandah, several Papilios, Callidryas, Terias, and a Urania are plentiful in the grounds, and all around is the forest. Everybody knows our business here: there are three blacks attached to the place, and the villagers come in and out when they please. We tolerate the black-eyed Indian girls coming to gather flowers for their hair, and gratify their curiosity by showing them our collection, and telling them the insects are “para medicina.” The people are very gentle, polite, and friendly; the blacks are dreadfully independent and shrewd, but good-humoured: one, Vicenti, is an excellent assistant to us; he is better acquainted with the names and properties of plants and trees than any man in Parà, and is a glorious fellow to get wasps’-nests, and to dig out the holes of monstrous spiders. They have many pretty customs here; a troop of children came by me to-night as I was searching for Coleoptera; the first, a sweet little Indian girl, begged my hand, which she pressed to her lips *en passant*, and all the others did the same, saying “passa been Senhor.” I have seen the negroes in the street do the same: from this and a hundred other

strange sights, a walk through the streets of Pará is the greatest possible treat to me."

"Pará, October 19, 1848.

"Since I wrote to you I have been travelling a good deal: we staid in the neighbourhood of Pará till August 26, then forwarded a large chest of insects, 3635 specimens, twelve chests of plants, &c., to England, and proceeded with an American, who was going for cedar, on a voyage up the river Tocantins. We hired an old canoe with two sails, and manned by three Indians, two of whom deserted and left us in great difficulty; we had to hire men as we could. The journey took five weeks, and we reached about the fourth degree south latitude, where very few Europeans had been before; and only one Englishman, Mr. Burchell. At different places we stopped to collect; but of course slept most of our time on the water under a cover of palm thatch arched over the boat; and living on dried fish and biscuits, or turtle, fresh fish, lizard or monkey; just what turned up. We passed out of the flat, swampy, muddy region, which forms the Delta of the Amazons, and reached the mountainous region of the interior. With all the difficulties I thoroughly enjoyed the voyage: we had fine weather and good health; had a boat to go on shore, to shoot, &c.; and landed besides generally during adverse tides. The river and forest scenery, though monotonous, was very beautiful; the water dark, and clear as crystal, with sandy bottom and shores; magnificent forests, and undulating lands; groves of the *Bertholletia excelsa*. The river for one hundred and fifty miles is thickly studded with islands; the width at the mouth, six to eight miles; about two hundred and fifty miles up, only one mile. The reason of its being so little known, is from its being unnavigable higher up from rapids and falls, caused by its bed being choked up with rocks: at the extreme point to which we reached, we were obliged to travel in an open boat for two days; the river for miles being full of intricate channels, falls, roaring rapids and whirlpools: it was most exciting shooting the rapids, amidst the yells of our Indian pilot. What struck me most in this journey, was the scarcity of animal life; whether it is really so, or whether owing to its being diffused over such an enormous extent of forest, I cannot say. Of quadrupeds, I only saw about half a dozen monkeys and one rodent animal during the whole voyage; birds were more abundant, but it was difficult to shoot more than five or six in a morning worth having: on the rocks, sandy islets, and shores, were always a few herons, Ibises, sand-pipers, and plovers; the two

former, solitary and shy : on the trees by the river side and up creeks, were also kingfishers of very great variety, from the size of the British species up to that of a rook. I only saw one flock of ducks, one species of humming-bird, a few parroquets, orioles, jacamars, fly-catchers, hawks, goatsuckers, &c. : two grand birds were the frigate-bird and blue arara ; the latter glorious bird we could not get a shot at, though small flocks flew over morning and evening. As to the insects they were not numerous ; the sandy and pebbly beaches did not produce a single beetle : in the woods was as usual a great variety of lovely butterflies, but few in individuals ; nearly all the species different from Parà ones. Up to the 1st of August we numbered four hundred different species of butterflies ; now, perhaps, together we have five hundred and fifty, of which at least two hundred are single specimens or pairs. Shells too we searched for closely, and found some ten or twelve species, very dull-coloured ones. Fishes were not very plentiful ; in rocky bottoms we used to see numbers of a pretty one banded with yellow and black ; and towards the mouth of the river plenty of porpoises were rolling about : we saw three alligators, about half a dozen snakes, one large Iguana, and some handsome lizards. Wallace and an Indian were nearly upset in a boat on a lake by an alligator : we frequently saw the footprints of the jaguar in the sands. In a country like this, I expected to see the woods and waters teeming with life ; but by the banks of the Trent, on a moist summer evening, you may feel more of the presence and activity of life than here ; the woods, too, are sombre and oppressive to the spirits, being almost destitute of flowers, and all that constitutes the beautiful. For vegetation, the banks of the Mojà, in the Delta of the Amazon, afforded most delight : the luxuriant piling up of glorious foliage ; the plenty and variety of fringing palms ; the twining drapery of creepers ; the glorious leaves of the various *Musaceæ*, and the vivid green in morning and evening, are beautiful to the eye. You ask me to look out for strange forms of insects ; I assure you I take everything I can get hold of : the most curious things are various Orthopterous and Homopterous insects, *Proscopia*, *Phasma*, &c. Some spiders are monstrous ; one *Tarantula*, of which I sent five specimens to S. Stevens, is the most fearfully ugly thing in creation. I am sending by this vessel three boxes of very choice insects.

“A few words about plants before I finish. From the uniformity of the dense forest, there are few smaller plants : of orchids I am now quite convinced there are but very few species, and those small and insignificant : a botanical collector, who has been here eighteen

months, I hear has had his last collection refused, at Liverpool, for the freight! Grasses are few, some peculiar, found in the small patches of marshy *campos*: I shall dry specimens of all I find. Ferns are numerous, but all small. You scarcely see a flower in the forest except of Mimosas, Melastomas, Ingas, and a few lofty forest-trees: some few magnificent flowers are found on the banks of rivers, belonging to forest trees. The potato does not grow wild here: I am told that when first planted from seed a fair crop is obtained from it; but that afterwards it runs sweet, like the native sweet potato. Many *Solanums* grow wild in cleared grounds, some form monstrously ugly trees; but they have plenty of substitutes for the potato here; the best, I think, is the sweet Mandioca (*Manihot Aypi*) a large farinaceous root. Farinha de Mandioca (*M. utilissima*), a most nutritious food, is here just now very cheap, 1s. 7d. for 64 lbs., each pound takes 2 lbs. of water, and is equal to 3 lbs. of flour.

"You say you have filled five large boxes of Lepidoptera by your season's collecting so far; I assure you it is more than I can do in an equal time: of course I no longer take a few of the commonest species—without them, some dozen or so altogether—I do not average more, in six hours collecting, than forty specimens; but then they will be of thirty different species: and a second day, I may take fifteen or twenty species different from those of yesterday, and so forth; it is besides arduous work, and I have to walk half a mile in the heat of the day in returning home. I have not yet skinned many birds.

"The climate remains the same; only, being now the height of the dry season, we have only a shower occasionally. I am copying a register of the thermometer, barometer, and rain-gauge, kept here by an American merchant for two or three years. The lowest temperature known has been 72°, the highest, 92°; the mean, about 80° for many years. The quantity of rain, for the rainiest month this year, is 14.487 in.! The number of fine days each year, about ninety-five. Ague is rather prevalent just now, but the irregular habits of the people make it worse. I do not expect to give you in England an idea of the exceeding beauty and healthfulness of the climate: a pity such a country should be in possession of such an ignoble and demoralized race."

H. W. BATES.

(To be continued).

Mischievous propensity of the Squirrel.—The discussion about the supposed carnivorous propensities of the Squirrel (Zool. 2762)—though what I am going to state has nothing to do with that question—brings to my mind an instance of what struck me as almost a want of instinct in this little quadruped, which came under my notice a few summers ago. Very early in the month of August, or before, some squirrels visited my premises and commenced a most furious attack on the nut-trees, not only before the nuts were ripe, but before they contained kernels half so large as a small pea, or sufficient to reward them for their pains. This devastation was carried on to such an extent that the ground under the bushes was quite strewn with the nuts they had plucked and discarded, and which might have been gathered up by hand-falls. Now I admire the squirrels for their beauty, their exquisite agility and amusing habits; and in return, I am perfectly willing to allow them their full share of my nuts when fit to gather. But in the present instance I found there was no alternative but either to submit to the entire destruction of the unripe crop, or to expel the squirrels; and I very reluctantly gave orders that the depredators should be shot, if detected in the fact; and one was accordingly made an example of. If I mistake not, squirrels, like monkeys, the nuthatch, &c., have, generally speaking, instinct enough to discard a light nut that contains no kernel, without being at the pains of opening it. And for the same reason I should have expected that they would have shown a like discrimination by refraining from the immature nuts, which were equally unfit to reward them for their trouble. I must observe that they did not appear to feed upon the white pith, which, as everybody knows, fills up the interior of the nut while the kernel is in embryo; the pith remained untouched by them; so that their act seemed like wanton destruction, and an instance, as I may say, of bad economy, which in general nature is careful to avoid; it was worse policy indeed, than that of the poor Irish, who were compelled to dig up their potato sets after they had been planted, in order to save themselves from absolute starvation.—*W. T. Bree; Allesley Rectory, May 18, 1850.*

[See also Chambers' Edinburgh Journal, No. 329, date April, 1850, paper intitled the 'Ways of the Squirrel.']

The Fisherman: a Character. By W. PEARSON, Esq.

THERE is a certain secluded pastoral valley dividing Westmoreland on a part of its western confines, from its neighbour North Lancashire. It is intersected through its whole length of ten or twelve miles, by that pretty little trout-stream, the Winster, from its source near Bowness, to its termination below Castle Head, where it is absorbed by the great watery reservoir of Morecambe Bay. It is not our business, however, at present to describe this obscure vale, its sweet natural woods clothing the gigantic side of Cartmel fell, with its green meadows and sloping fields, its simple farm-houses planted in all kinds of snug corners. We will leave it like modest merit in its own blessed retirement: it is mentioned in no Guide-book.

"The tourists know it not, it will remain
Unknown to them, but it is beautiful,"

and is endeared to us by a thousand recollections: we have known it from a boy. Many a time from joyous youth up to sober age, have we rambled by that sweet stream, and plied "the angler's solitary trade," ensnaring the crimson-spotted, golden-sided trout. But we must not be tempted to dwell on these charming reminiscences. Our present object is an attempt to describe a somewhat singular character, whom we met with lately on a morning walk along the road that skirts the aforesaid stream. We had stayed our steps as usual, to contemplate with ever-new delight the various features of the valley, when we observed moving down the stream, from just opposite to where we stood, a certain individual, who, though not strictly an angler, may be denominated a *fisher* of the first magnitude. We had not seen him till he moved, but he had seen us, and shifted his position about a hundred yards down the brook, by the side of which he again planted himself. We have known him long, but not intimately, for he is of shy habits, and very chary of all familiar intercourse. We could not but admire his handsome tall figure as he stood on the bank of the stream, looking into it "as if he had been conning a book." He was arrayed in his constant garb, a durable sort of dress, the colour of dingy white, or rather approaching to a pale blue: the cut or fashion of this costume he never changes, nor does he often renew it; not oftener we believe than once a year, when he gets a new suit.

Your angler is somewhat of an enthusiast, and pursues his gentle craft with an absorbing interest; but then it is only as a pastime, and at suitable seasons; when the weather is favourable, when the spring rains have raised the brooks, and dyed their waters with the precious ale colour, and the wind breathes from the mild south;—and yet after all, alas! how often does he return with an empty pannier. How different with our hero! His sport depends not on the fickle seasons, at least he pursues it in all weathers; in the bright sunshine, or when the face of heaven is overhung with clouds; in the hot days of summer, or when the wind blows from the biting north, and the relentless frost has bound up the gentle streams in icy chains; he is still at his work, fishing—evermore fishing! Indeed, it must be confessed his very living depends upon it. How often have we pitied him in winter,—in a severe winter. It is hard to live upon nothing but fish, and moreover to have to catch them before you can dine! It is hard, indeed, to be confined to one dish and to have no other resource, for

if that fail, where are you? It is like the Irishman with his potato; when that rots there is famine. But it has been hinted that our friend is not entirely confined to fish, and that he can occasionally eke out his scanty repast with frogs: we shall not deny it; it is probable enough: it is consoling even to have such a resource: in this he but resembles the Frenchman.

We have said that the angler is an enthusiast, much carried away by his imagination: we have known two or three of this gentle tribe, buoyed up with the hope of sport, set off from this part of the country, walk all the way to Borough Bridge to try the waters of the silvery Lune, and return the same night after fishing all day, a distance of near forty miles; perhaps not much encumbered by heavy panniers.

But if the disciple of Walton is patient and persevering, and takes long rambles in pursuit of his pleasures, we think he is exceeded in every respect by the subject of our description. We believe there is not a lake or tarn, still water with sedgy shore, or running brook with sandy bottom, or even dike or ditch within a radius of ten miles from his home (near Milnthorp), that is not well known to him, and in which he has not pursued his solitary sport.

We have been somewhat puzzled whether to class him as gentleman or poacher, for he partakes of the character of both, a kind of hybrid between the two. He resembles the gentleman in not selling his game, nor after serving his own needs does he dispose of it in any other way except feeding his children when he happens to have any, and then only while they are of tender age; for they are soon turned out of the parental shelter, and compelled to seek their own living in the world at large, like himself, by fishing. So it has been with his progenitors; so will it be with his posterity till the end of time. As in the east with the Hindoos, and in a degree with other wanderers like himself, as gipsies and potters, his family seem not to have got beyond the system of *castes*, which it must be allowed shows but a low point of civilization. But still as he sells not his fish, nor stoops to any kind of vulgar labour, so far we must rank him as a gentleman. On the other hand, however, as he cannot be called the owner of a single rood of land or water, and yet presumes to sport whenever it suits him, on the property of gentle or simple, yeoman or squire, without condescending to ask leave of any man, we fear therefore, as far as this goes, we must consider him a poacher. Moreover, like too many of that lawless profession, he is wretchedly poor, and laying nothing up for a wet day, he must be often sorely beset with his wants. There is something in his looks that makes this but too probable; the same lank, meagre figure he always was: let the season be ever so

genial, fish ever so plentiful, it makes no difference in his personal appearance, he is thin and spare as ever, with scarcely an ounce of flesh on his bones. He is emphatically one of Pharaoh's lean kine ; seems far gone in a consumption ; almost like the frightful figure of death in the old pictures. It was this lean and haggard appearance that led a fanciful French naturalist to describe him as the very type of misery and famine. We suspect, however, that Mons. Buffon was a little out here ; and that our hero has more pleasure in life than he was aware of : his patient, persevering efforts, must procure him many a savoury meal, and though they do not fatten his ribs, they do at least keep him in good working, or rather sporting, order : we trust he will long remain so, and continue to enliven our valley with his presence. Poacher though he be, we respect him for his love of freedom and independence ; of nature and of fishing. We are certain that however fortune may frown upon him, to whatever straits he may be reduced for a living, that rather than seek shelter in an union workhouse, he would die of famine.

We have said nothing of his method of fishing. How various are the acts by which cunning man contrives to circumvent the finny tribe ! with all deference to honest Isaak, it must be allowed that the whole art of angling is based upon deceit and imposture ; on that account, therefore, our sportsman rejects it, we suppose. And then as to the use of nets, it has doubtless been copied from the villanous spider, who weaves a web from his own bowels, and hangs it before the door of his lair, in which he lurks, ready to pounce upon the unwary victim entangled in its meshes : he will have none of this. Nor does he adopt the more simple and straightforward scheme of the school-boy and otter, by dragging his speckled prey from under the banks and braes of the populous brooks. No, he has a method of his own. Armed with a single spear-shaped weapon of about six inches in length, woe to the unhappy trout or eel that comes within its range ! It is transfixed with the speed of lightning.

There is no history of an individual from which a moral lesson may not be drawn. Then why not from the character of our hero ? In a poem of Wordsworth's, a fit of despondency is said to have been removed by the patient and cheerful bearing of an old man, whom the poet met with on the lonely moors, gathering leeches. We have sometimes amused ourselves in running a parallel betwixt the character we have attempted to describe, and the brave old Scotsman of the poet. There is no slight resemblance : both models of patience and

perseverance, and of contentment with the calling allotted by heaven ; both wanderers, both haunters of ponds and moors.

“ From pond to pond he roamed, from moor to moor.”

Yes, and on much the same errand too ; for we believe our hero could gather leeches upon occasion : indeed we durst back him for a trifle (were we in the habit of laying wagers) against the old man, both for quickness and tact in that employment. We have, however, no wish that the poet had substituted *our* hero for *his*, in that noble poem, for we would not alter a line or word of it ; we only beg that our fisher may be placed side by side, as a teacher of “ resolution and independence ” with that immortal leech-gatherer.

Our paper has reached a greater length than we had intended, and yet we have touched only on the character of an individual ; perhaps we may be pardoned a few words more on the tribe to which he belongs : like that of the gipsies and other Nomadic races, its origin is involved in much obscurity. The probability is, that it came from the east, but of its first introduction into Europe we believe history is silent, and the most learned at a loss on so mysterious a subject. We think, however, it is pretty certain that this wandering tribe had spread widely — were perhaps more numerous than at present — before the barbarians from the north had overrun the Roman empire. Nay, if we might hazard a conjecture, they are so ancient that they date from beyond the pyramids.

Not however to indulge in useless disquisition, but to confine ourselves strictly to the historic period ; we find abundant evidence that they were firmly established in our island during the middle ages, and held in much higher respect than they are at present. Not only were they often present with the baron in his field sports, especially that of hawking ; but not seldom in that ancient pastime, played a very *active* part. A still stronger proof of the regard in which they were held was, that when the lordly baron entertained his numerous followers on grand feast-days, the dinner would have been thought very incomplete had they not been present, and then not at the lower end of the long table, among the poor retainers, but at its upper part, with the most honoured guests. Like the Jews, the people we speak of live in little knots and communities ; but not like them confined to some dirty quarter of a city, where they can practise their money-making arts. On the contrary, our purer race avoid all towns ; nay,

like the Arab of the Desert, they view them with unmingled fear and horror. Never is there one seen there, unless it be some poor captive, pining away his life for want of fresh air and freedom.

We profess not, however, to write the history of the tribe: suffice it that we glance at one event which has been chronicled by the local historian, and which occurred somewhat more than half a century ago. Historians, it has been remarked, fill their pages with little more than details of wars and conquests: we are sorry our episode partakes of the same character. Our fishermen had long occupied a certain territory, living in harmony with, and as they naturally supposed, giving no offence to, their neighbours. But on an ill-fated day, their ancient settlement was attacked without notice, and with such violence (their houses being literally pulled down over their heads) that many of the junior members of the community perished in the ruins. Ejected somewhat in the style of an Irish eviction, they sought an asylum near their old neighbours, where there was room more than enough for both parties, and where they might have lived peaceably together had there been a proper Christian disposition existing. This had indeed been the case in prosperous times; "but misery makes a man acquainted with strange bedfellows," as will appear in the sequel. It should be mentioned that the tribe near whom our exiles sought shelter in their calamity, are a swarthy, dark-hued race, by no means of respectable character; indeed they lead a kind of vagabond life to this day, living by plunder wherever they can pick it up. Even the farmer's grain in the fields is not at all safe from their depredations. But lax as are their notions of the relation of *meum* and *tuum*, and regardless as they are of the property of others, it seemed in this case they were tenacious of what they regarded as their own. For hardly had our poor piscatory friends settled down in their new quarters, before they were attacked with the greatest fury; and the habitations which they had begun to erect, pulled down, and the materials scattered to the winds. It could hardly be expected that the whites would endure quietly this treatment from the blacks, and submit tamely to a second ejection: so far from it, they stood up manfully for what they deemed their rights, and the consequence was, a most obstinate contest took place, which was carried on with various success during the spring and the ensuing summer. We have not been able to obtain an exact account of killed and wounded, as no returns were made that we ever heard of, but they were pretty numerous on both sides. The opposing armies were indeed more equally matched than might be supposed; for although the blacks

are a diminutive race when compared to the whites, not indeed half the size of their stately opponents ; yet what was wanting to them in individual prowess, was more than made up by overwhelming numbers, for they certainly out-numbered the exiles by ten to one; a great odds in any way. But notwithstanding this, such were the indomitable courage and obstinacy of our fishermen, and such the effective use they made of that formidable weapon of theirs, the pike, that they kept possession of their new domain, against every effort of the blacks to expel them. We will only mention, that the latter renewed the contest in the following spring, and another campaign was fought, but we need hardly add, with the same result as before, our dear piscatory friends coming off finally victorious. We suppose a lasting peace was eventually concluded, for since that day to this the former belligerent parties have lived in amicable neighbourhood. May such be the end of all wars !

W. PEARSON.

Border Side, near Bowness,
December 17, 1849.

Note on the occurrence of rare Birds near Bridgwater.—I am late in my notice of the waxwing in Somerset: many of these interesting birds visited the neighbourhood of Bridgwater last winter, and some were shot and preserved for museums. Cirl buntings have spent the winter here; during unpleasant weather, in early spring, they often assembled in pretty large flocks on the tops of elm-trees and united their sober notes. A few of these birds spent the summer often, and probably built here, but I have not met with their nests. Wheatears came under my notice on the 31st of March, and I heard the chiff-chaff on the 2nd of April: these two birds I have known here at least a week earlier. On the 3rd of April the wryneck was heard: a few swallows and martins, and the yellow wagtail were seen. On the 8th, the nightingale, grasshopper warbler and willow wren, were in full song. On the 15th, the common whitethroat, blackcap warbler and redstart sang. On the 17th, the cuckoo proclaimed its arrival. April 25th, I procured Richard's pipit, tree pipit, and gray-headed wagtail. May 5th, swifts appeared: 6th, swifts were plentiful. To-day I saw hundreds of swallows, martins, and sand martins skimming the Tone, near the bridge, at Taunton, regardless of interruption; and hundreds were huddled together on the upper cornices of houses near the bridge, where they obtained shelter from the rough wind and cold rain. 10th, to-day I hear of dozens of swallows and martins found dead on the ground and in farm bartons, and that flocks of these interesting visitors are so weak, and eager in pursuit of food over water and meadows, that they are readily struck down with sticks and stones. We have had much rough cold weather, and many frosty nights since the Hirundines appeared. To-day the air is from the south and the sun has shone bright, and these birds are brisk and animated. A small flock of

spotted flycatchers visited us in the early part of last summer, but I could not hear of their nests. I have known them here before, but not so many together. A few specimens of the golden oriole also visited us about the same time: these birds have been noticed here before, and I have a handsome male preserved. I find that we have 235 well-authenticated species of birds, residents and visitors, of Somersetshire, and seven questionable ones. It is curious that we come so near in number to the birds of Oxfordshire, as reported in your pages by the Revds. A. and H. Matthews, in their late highly-interesting article on this subject.—*W. Baker; Bridgwater, May 11, 1850.*

The Eagle Owl (Strix Bubo) breeding in confinement.—I had, last year, the pleasure of noticing in the 'Zoologist' (Zool. 2452 and 2566) the circumstance of a pair of eagle owls having bred in confinement. I have now to mention that the same pair of birds have again bred this year. Three eggs were laid this time, being the same number as last year; one egg was addled, but the other two have produced a pair of fine healthy birds. The first egg was laid this year, on the 10th of March, being thirty-four days earlier than was the case last year. The period of incubation (reckoned from the laying of the first egg to the hatching of the first young one) has been in both cases thirty-six days.—*J. H. Gurney; Easton, Norfolk, May 14, 1850.*

Occurrence of the Pied Flycatcher (Muscicapa atricapilla) at Battisford, Suffolk.—A beautiful male of this species was shot on the 9th of May last, at the above place; it is the first occurrence of this bird in the neighbourhood that I am aware of.—*Henry Lingwood; Battisford, Needham Market, Suffolk.*

Imitative power in the Blackcap (Sylvia atricapilla).—We have a blackcap in one of our plantations, which amuses me by its accurate imitation of the alarm-notes of the blackbird and robin. The *pink, pink, pink*, of the blackbird is hit off with wonderful exactness, as is also that *luctuose* note so peculiar to the robin at nesting-time. If you think the circumstance worth mention in the pages of your publication, I place it at your disposal.—*Peter Inchbald; Storthes Hall, May 16, 1850.*

Nest and Eggs of Savi's Warbler.—I took a nest of Savi's warbler at Dagenham, on the 14th of May: the nest was built solely of reeds, and exactly resembled that represented in the 'Zoologist' (Zool. 1307). It contained five eggs uniformly freckled all over with minute dark brown spots.—*I. Green; Whitecross Place, Wilson Street, Finsbury, June 1, 1850.*

Occurrence of the Wood Lark (Alauda arborea) in Scotland.—The extensive drainage which has already been carried into effect, as well as that which is still being prosecuted with unusual vigour, in the eastern portion of Aberdeenshire, have contributed, there cannot be a doubt, to the amelioration and the softening of the climate, and to the appearance, for the first time, of natural objects, which at no distant period had never been seen in this portion of the kingdom. It seems equally certain that these desirable results have been accelerated by the numerous plantations and copses which now flourish in luxuriant growth, even in places where, only a few years ago, the surface of the ground was covered all over with heath,—unprofitable to man and associated with frost and cold, although in the height of summer exhibiting, it must be allowed, a tint of purple which gladdened the eye, and might beseem the robe of a monarch. Of the feathered strangers, which have in consequence been recently met with in this part of the country, may be enumerated, as among the more

interesting, the wood lark (*Alauda arborea*). On referring to such books as are within my reach, I perceive that Mudie is the only writer who speaks unhesitatingly of this bird as entitled to a place in the Scottish Fauna. Although, however, he takes notice of its breeding generally on the skirts of the Grampians, and in other parts of the country ('Feathered Tribes of the British Islands,' vol. ii. p. 11) he does not condescend upon any particular locality in Scotland, where it is regularly to be seen and heard. On the other hand, the occurrence of a specimen, even in Northumberland, is by Selby considered so unusual as to be deemed worthy of being specially recorded (Wood's 'British Song Birds,' p. 259). Sir William Jardine is still more explicit and decisive, and he is unquestionably an authority deserving of great consideration: his words, when speaking of the wood lark, are these: "We have not ourselves seen a Scottish specimen, and cannot at present refer to any authentic instance of its capture." ('Naturalist's Library,' vol. xxiv. p. 328). It is, on this account, with great satisfaction that I transcribe for the 'Zoologist' a communication in regard to the bird in question, from Mr. Thomas Edward, of Banff, whom I have always found a most accurate, as well as an enthusiastic and persevering observer of nature:—"While walking through the plantations of Duffhouse this morning (May 27th, 1850) I could, amid the various songs of the birds, which cheered me as I passed along, easily distinguish one which I had never heard before. Being familiar with the notes of our resident species, as well as with those of the songsters which annually pay us a visit, I felt certain, on that account, that the bird whose notes I had just heard must hitherto have been a stranger in this quarter. Accordingly I proceeded in the direction from which the sounds were coming; and after several windings and turnings, I eventually got sight of the object of my pursuit, seated on the top of a wall near to a field of grass, and in full song. From the markings on its breast and neck, its lark-like manner, and its dumpy appearance, I had little difficulty in recognizing it to be the wood lark a very rare, or rather, so far as I am aware, an entirely new visitor to this locality. The sound, which I heard frequently repeated during my stay, continued without interruption for nearly two minutes each time, and contained some of the sweetest notes of bird harmony I had ever listened to. It appeared to me to partake much of the mellow warblings of the thrush; of the liquid silver tones of the redbreast; and in a less degree of the strains of the sky lark, all sweetly blended together, and having the last note beautifully drawn out into a soft mellifluous cadence as it faintly died away, leaving on the ear of the listener a pleasing sensation, which created a longing to hear it again repeated. Delighting, as the wood lark is said to do, in a district of plantations interspersed with pasture lawn, and not being a species which is migratory, at least to any distance, there is a prospect of its increasing and becoming permanent in our locality. On this account it is to be hoped that it may meet with every encouragement and protection. Such, I feel certain, will be the wish of the noble proprietor, in whose grounds it has thus been discovered for the first time." It would appear to be, generally speaking, the case, at least in Scotland, that the more locally distributed of the warblers, &c., spread themselves gradually over the country with the draining of marshes, the cultivation of barren heaths, and the increase of shrubberies and sheltered plantations. The melodious blackcap (*Curruca atricapilla*) had never been seen nor heard in the woods around Duffhouse till about fifteen years ago. It is now, however, by no means uncommon in that locality, and it seems to give a preference to beechen groves, more especially where the

ground beneath the trees is covered over with brambles and other trailing plants.—*James Smith ; Manse of Monquhitter, Aberdeenshire, June 3, 1850.*

Curious Nidification of the House Sparrow.—Behind the premises where I reside is a chimney, in the top of which is stuck a thorn-bush, I suppose to prevent it from smoking ; well, in this bush a pair of sparrows have built their nest, although it is a kitchen chimney, and smoke is issuing in dense volumes throughout the whole day. The two comical fellows are in the habit of coming into my yard to feed on the crumbs laid for that purpose ; and for some time their singular appearance puzzled me (for when feeding with the others they looked like two tiny female blackbirds), until one day when looking out at a staircase-window which overlooks the yard, I saw the problem solved, for both birds were collecting building materials for their nest, and I watched them daily till it was completed. And now they have young, and have nearly ceased visiting me for crumbs, they sometimes come and snatch a morsel to satisfy their own hunger, then off they go foraging for their brood, not to rob the farmer of his corn, but to clear the gardens and orchards in the neighbourhood of many thousand insects. Should they succeed in rearing their brood I will inform you.—*Joseph Duff ; Bishop Auckland, June 10, 1850.*

Occurrence of the Golden Oriole (Oriolus galbula) near London.—On Saturday, the 25th of May, the gardener of John Masterman, Esq., at Leyton, shot one of a pair of strange birds that he had seen about the garden for some days. The bird proved to be a female golden oriole. It was sent to Mr. W. Morris, bird-stuffer of this place, for preservation, and on dissection was found to contain two eggs, but with unformed shells. This seems to warrant the supposition that the birds had a nest, but it has not yet been found.—*H. Barclay ; Leyton, Essex, June 5, 1850.*

Occurrence of the Golden Oriole at Elmstone.—I send you the following extracts from a letter of my friend Mr. C. A. Delmar, who has been fortunate enough to shoot a golden oriole. He says, I heard of its arrival from my brother, who resides at Elmstone : he wrote to me on the 6th of June, asking me to come over to shoot a golden oriole, which he had seen and heard in the very same spot where a male and female golden oriole, with their nest and eggs, were taken last year, about this time. I had the good luck to shoot this bird on the 6th, and on comparing it with the others we are of opinion it is a female : the colour of the plumage is not very bright, and resembles the female taken last year. I have stuffed it, and it is now in the possession of my brother, with the birds shot last year. We looked the place well and found only this bird, and my brother has been to the spot every day since, but has not seen or heard another. A very beautiful male golden oriole was shot at Lydd, in the latter part of May last, by a farmer who saw it settle on his window : a female was also seen, but she escaped. Before hearing of the golden oriole from my brother at Elmstone, I saw in the marshes, on my way to Word, a golden oriole fly from a thick bush to a bush a short distance off : at last it flew away in the direction of Word, and I was not able to find it again.—*J. W. Hulke ; Deal, June 17, 1850.*

Varieties of the Yellowhammer (Emberiza citrinella) and Blackbird (Turdus merula).—A female white specimen of the yellowhammer was shot last week near this town ; together with, some short time since, a purely spotless white example of *Turdus merula* : this latter, it was remarked, seemed apparently smaller in size compared to the common species. The bird is now in the possession of a taxidermist at Ramsgate. Among the varieties mentioned by Mr. Thompson in his 'Note Book of

a Naturalist,' neither of the preceding are enumerated.—*W. H. Cordeaux ; Canterbury, June 7, 1850.*

The Madagascar Grosbeak (Loxia Madagascariensis) breeding in an Aviary.—I take the liberty of forwarding to you a note of the Madagascar grosbeak (*Loxia Madagascariensis*) breeding in confinement in this country: I believe this to be of rare occurrence, as I am not aware of another instance yet recorded. Should you deem this worthy of notice in the 'Zoologist,' I beg to place it at your disposal for that purpose. This pair of birds, which have been for the last year in an aviary in our greenhouse, with sixty or seventy other foreign and British birds, commenced building about the end of April; and by the 1st of May they had completed their nest. This was entirely composed of hay and horse-hair beautifully woven; in shape oval, covered at the top, with the entrance on the side, not unlike the nest of our long-tailed tit. On the 6th of May it contained four white eggs, very similar to those of the house martin. On the 19th of May two young ones were hatched, and on the 30th of May they finally left the nest. Since then they have been fed very diligently by the female alone, and are now both fine birds. I think one is a male and the other a female, though their plumage is the same in both as that of the adult female. To-day, I see, the old pair are repairing the nest as if for a second brood.—*J. G. Leeming ; the Adelphi, Salford, Manchester, June 13, 1850.*

Note on the Californian Quail.—I beg to forward the following extract from the private journal of a naval officer, a friend of mine, concerning the Californian quail, which may not prove uninteresting to some of the readers of the 'Zoologist.'—"In the year 184—, shortly after the Americans took possession of California, I happened to be there in H.M.S. ——. Having heard so much of the abundance of quail within a short distance of Montiero, and the beautiful plumage of this bird, which I must confess surpasses that of any other of the species, I started forth about 9 A. M. for the purpose of procuring specimens of this bird. A thick fog coming on, I was completely enveloped in mist for nearly three hours; about noon the sun began to pour forth its rays through the thick foliage of the pine trees, many of which grow to the height of 80 or 90 feet, without a branch. To my astonishment on passing through some low brushwood, up got, close under my feet, no less than eight or nine of these birds; I fired and killed one, which proved to be a male bird having a crest of three or four feathers on its head. In the course of a couple of hours I killed six. Being somewhat tired I sat down on a stone and commenced smoking a cigar; I had not been seated many minutes before I heard a rustling in the brushwood behind me; I started up, with my gun in hand, intending of course to lay the marauder low, when judge my surprise on beholding, instead of a wild beast, an Indian boy, certainly not more than eleven years of age, creeping stealthily along, armed with bow and arrow, in search of quail, as they ran under the bushes for protection. No less than four or five fell by the skilful hand of the young Californian. I was so delighted with his performance that I tried to entice him to come near me, but as yet he was unaccustomed to the face of the white man, and instead of obeying my summons darted into the brushwood and was soon lost to my sight."—*J. M. Jones ; Montgomery, North Wales, May 10, 1850.*

Occurrence of the Black Grouse (Tetrao tetrix) in Herefordshire.—A specimen of the gray hen or female of the black grouse was killed towards the latter end of March, in a wood belonging to J. Arkwright, Esq., of Hampton Court, Here-

fordshire, by the keeper, who mistook it for a hawk, as it flew out of a tree. I believe it is a rare visitant in Herefordshire so far down. It is stuffed and in Mr. Arkwright's possession.—*John Biddulph; Harrow-on-the-Hill, May 19, 1850.*

Occurrence of the Black-tailed Godwit (Limosa melanura) near Wisbech.—Two beautiful specimens of the black-tailed godwit, in full summer plumage, were shot in the fen about six miles from this town, on the 4th instant.—*T. W. Foster; Museum, Wisbech, May 17, 1850.*

Occurrence of the Dotterel Plover (Charadrius morinellus) at and near Wisbech.—A fine male specimen was picked up dead, on the Eastern Counties line of railway, near Wisbech, on the 9th instant; its death had been occasioned by flying against the telegraph wires. The following day an adult female was shot on Guyhirn Wash; on dissection, the eggs in the ovary were found to be in an advanced stage.—*Id.*

Occurrence of the Whimbrel (Numenius Phaeopus) at Sutton.—An adult male specimen of the whimbrel was shot at Sutton Marsh, about nine miles from Wisbech, on the 9th instant. It is an unusual visitant on this part of the coast in the winter season, but more especially so in the month of May.—*Id.*

Occurrence of the Wood Sandpiper at Woolwich.—A specimen of this rare sandpiper, just shot by a gentleman at Woolwich, has been brought to me for preservation.—*I. Green; 35, Whitecross Place, Wilson Street, Finsbury, June 1, 1850.*

Occurrence of the Spoonbill (Platalea leucorodia) at Sandwich.—A flock of six spoonbills has frequented Sandwich Haven; one of them has been shot by a person of Sandwich, and another in the Wingham marshes; the latter was an old female: both were shot in the first week in June. My friend saw three flying about in Pegwell Bay a few days since, but was not able to get near them.—*J. W. Hulke; Deal, June 17, 1850.*

Occurrence of the Spoonbill at St. Mary's, Scilly.—During the past week an example of the spoonbill was shot at the above-named locality, with the occipital plumes far more developed than in any example I have yet seen from this county. The occurrence of this bird is not now unusual in the west of England, and perhaps the date of captures is as important, as a notice, as the captures themselves.—*E. Hearle Rodd; Penzance, June 10, 1850.*

Occurrence of the Grey Phalarope (Phalaropus lobatus) in Northumberland.—A fine specimen of the grey phalarope was killed in the vicinity of Morpeth, in August last.—*Robert Lewins; Morpeth, June 6, 1850.*

Occurrence of the Goosander (Mergus merganser) on the Severn.—During the first week of January last, a male specimen of the goosander and a female in adult plumage, were shot up the Severn, three miles from Shrewsbury, by the gamekeeper of J. A. Lloyd, Esq., and having been stuffed by Mr. H. Shaw, bird-stuffer, Shrewsbury, are now in Mr. Lloyd's possession.—*W. J. Hope; Harrow-on-the-Hill, May 19, 1850.*

Occurrence of the Gannet (Sula Bassana) near Great Grimsby.—About a month or six weeks ago (I have been unable to ascertain the exact date) a gannet in full plumage, white, with tips of the wings black, was shot at Ludborough clay-pit, near Great Grimsby, in this county, and has been stuffed for Richard Thorold, Esq., of Beelsby House.—*W. Waldo Cooper; Rectory, West Rasen, June 10, 1850.*

Occurrence of the Gull-billed Tern (Sterna anglica) at Yarmouth.—A fine male bird of the gull-billed tern, in full breeding plumage, was killed at Yarmouth on the 24th instant; it was probably going northward towards its breeding place, as were

(no doubt) the following birds, which though not rare, may be worth noting as having been killed on the same day as the gull-billed tern, and in the same locality; viz., the kittiwake gull, gray plover, and common sandpiper, in full nuptial plumage, and the greenshank, pygmy curlew, sanderling and stint very nearly so, forming together a list of eight different species, procured on the same day, in the same place, and probably travelling in the same direction.—*J. H. Gurney; Easton, Norfolk, May 27, 1850.*

Occurrence of the Black Tern (Sterna nigra), Lesser Tern (S. minuta), and Common Tern (S. hirundo) at March.—On Tuesday the 7th instant, a small flock of terns was observed hovering over the large sheets of water called the ballast-pits at the junction of the Wisbech and St. Ives line, at March. They were shot at by one of the labourers on the Middle Level Works, and several were killed, viz., a pair of black terns, a lesser tern (male), and four specimens of the common tern. The wind had for some days previously been blowing from the N. E.—*T. W. Foster; Museum, Wisbech.*

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On the Green Lizard (Lacerta viridis).—Dr. Bromfield states (Zool. 2707) that he has been told by very competent authority, that the green lizard has been found to be quite frequent, and even abundant at, or in the neighbourhood of, Herne Bay. With all due deference to the person, or persons, on whose word the aforesaid gentleman founds the assertion of the number of green lizards seen in the vicinity of that place, at the same time I must, however, be permitted to differ in respect to the abundance he speaks of, and would furthermore detail the result of my own local observations, and inquiry concerning this reptile. Although living but a few miles from this interesting locality, I have never spent much time in collecting natural objects in that direction, on account of being able to procure a greater variety of entomological specimens more inland; nevertheless within the last few years I have been there at different times, in the summer months, but never by any lucky chance did I encounter one of these, in my opinion, most scarce creatures. As it is my custom, whenever any member of the lizard tribe startles me by its hurried and agile step in attempting to escape amongst the underwood, to discover what species it may happen to be, therefore I should most assuredly have recognised *Lacerta viridis*, in some of my rambles, had it been so very abundant. Again, I have enquired of an acquaintance, a most accurate and close observer of nature, who has been to and fro to Herne Bay more frequently than myself, and he has never met with, nor seen one. Moreover, individuals, who some short time since held large tracts of land in the adjacent county, assure me (and I can depend upon their veracity) that they have never observed the green lizard; and one farmer, somewhat observant, particularized those which he had oftentimes killed, believing they were injurious to his land, which from his description I immediately knew were the common species, but he never recollected "having turned up," as he expressed it, a green lizard all the time he had possessed his farm, for the space of ten years. On looking over the Reptilia in the Museum belonging to this city, I happily discovered a male and female *Lacerta viridis*, but in such a wretched state of preservation as to be scarcely recognizable. The particulars which I obtained regarding the whereabouts the pair came from originally, and the time, &c., are uncertain and dubious; but I can say this much, in tolerable

certainly, that it is some twenty-six years since they were first housed there, for the Curator of the collection remembers them as long as he has held that situation, and he believes that the said specimens were amongst the first presented to the establishment. No clue have I been able to find yet as to who caught them, and where they were found. Not being preserved in spirits of wine, every vestige of colour, and I might also add outline, has disappeared from them. Since the time they were sent, none others have been forwarded to this museum, and we might in justice conclude that were these reptiles found in abundance nine miles off, some one would have had the kindness to have sent a specimen or two for scientific students' examination. From these evidences I can but deduce the fact, or rather hazard the conjecture that the green lizard is not indigenous to Herne Bay, only naturalized, and even that comparatively doubtful. This I believe accords with Professor Bell's opinion on this point. Reflecting that we are all liable to err in our judgments, need I add that I will still continue to learn all possible intelligence with regard to the habitat, time of appearance, &c., of *Lacerta viridis* in this part of the country.—*W. H. Cordeaux; Canterbury, May 10, 1850.*

Shedding of the Skin as performed by the common Toad.—I have a small house under my care for growing cucumbers; there is a bed in the middle of it, and the soil is about 3 feet high from the ground (*i.e.*, to the top of the hills where the plants are in); a person, therefore, standing in the house can examine an object placed on the hill with ease. Last Saturday, about 7 o'clock, *A. M.*, I uncovered the house and went in to see that all was right, when to my surprise I saw my pet companion, a fine toad, apparently in the agonies of death. It was seated at the end of the hill of soil; its mouth, or rather under jaw, opened every few seconds (the top jaw did not move), the eyes shut, and the body violently convulsed each time the jaw opened, and with each convulsion of the body the right fore-foot was raised to the head. I placed myself in front of it, and perceived it was drawing something into its mouth each time the jaw moved; at that instant the right eye opened: it then inflated the body on the left side and drew in the right, placing at the same time the left fore-foot on the head behind the eye, and drawing it down to the mouth; it next appeared to hold its foot in its mouth for about a second, which it then drew out, and I distinctly saw the three points of skin that came off its toes outside its lips, till the next opening of the jaw, when they were drawn into the mouth. When it drew its foot over its left eye (which before was shut) it broke out as bright as ever. Some folds of the skin adhered to the left leg, but by two or three motions of the jaw they were gone, and in about a minute the skin was drawn off the lips; the toad had eaten its own skin, and there it stood with its new covering as bright as if it had been fresh varnished. I endeavoured to touch it to feel if it was clammy, but the creature gave a vigorous jump and the soil adhered to its legs. I looked at it in an hour afterwards but it had begun to assume its dingy brown colour. The time it took to get off its head dress was only a few minutes. It appeared to me that each time its jaw opened, it drew the skin forward, while it distended the body on the side to be uncovered.—*W. Turner in Gardeners' Chronicle.*

Capture of the Sun-fish (*Orthogoriscus mola*) *off Poole*.—In the 'Poole Herald' of the 13th of June, 1850, we find the following notice of the capture of this fish, which may prove interesting: "On Monday last, as a vessel called the Ferret, of Cowes, was coming up the river, the persons on board observed a huge monster in pursuit of another fish: and a short time after an immense conger eel was seen in the mud (it being low water), also what at first was thought to be a porpoise. The conger, which was about 5 feet in length, was at once taken by the master of the Ferret; the other being of immense size and weight, required the assistance of several men to get it off the mud into the boat; its weight is considered to be about 4 or 5 cwt., and it proved to be a sun-fish. It was exhibited throughout the day, but no one seemed to have any knowledge of the nature or history of this fish." And the editor of the same paper remarks, that one was caught seven years ago off Bournemouth, Hampshire.—*J. Mc'Intosh; Mitten Abbey, June 13, 1850.*

Occurrence of the Boar-fish (*Capros aper*) *at Bridgewater*.—I have to-day obtained a handsome specimen of this interesting fish from Bridgewater Bay, in the Bristol channel: it was a male with ripe roe.—*W. Baker; Bridgewater, May 12, 1850.*

The common Periwinkle (*Turbo littoreus*) *viviparous*.—A friend of mine, a good out-door naturalist, has this week brought me a considerable number of specimens with their ovaria full of living young ones, in their spiral shells.—*Id.*

The Gordius supposed to be parasitic.—I was quite at a loss, at first, to account for the immense numbers of Gordii which suddenly made their appearance in our garden during the late wet weather. In walking round one evening I counted thirty turning about the plants and twisting on the ground, and I have no doubt could have found many more had I been so inclined. The first thing which struck me, was their special abundance in particular spots, and I noticed they were particularly plentiful on some pæonies, the roots of which I knew to be infested with the larvæ of Hepiali, then in chrysalis, from which I strongly suspect the Gordii had made their escape. I recollect when at Luss, some years ago, two or three large Gordii emerging from a larva of Anarta Myrtilli, which they destroyed as a brood of ichneumons would have done. Their powers of climbing seem to be considerable: I noticed several which had mounted to the very tops of the bushes, twining round the twigs like snakes.—*R. F. Logan; Duddingston, near Edinburgh, June 14, 1850.*

Saturnia Carpini.—I have bred two specimens of this moth this year; one appeared in the middle of April and the other in the middle of May, both females. Three of the larvæ found together, were brought to me in the autumn, and they almost immediately formed their beautiful cocoons upon the same branch of white-thorn: one I gave away, and the other two produced the imago exactly at the interval of a month. Mr. Tompkins (Zool. 2793) relates an instance of its appearance

in the middle of March, and it is difficult to account for the irregularity of the appearance of this and other insects. As *S. Carpini* feeds upon the whitethorn, the natural time would be indicated by the growth of the foliage of that plant, and which is the period given by Haworth for the appearance of the first brood. My cocoons were in the breeding-cage out of doors all the winter. Perhaps the real explanation of this irregularity is to be found in the extremes of temperature we have had this spring. A warm day in March or April excites the requisite activity, and the insect emerges from its cocoon; cold weather then sets in, and vitality is dormant for a month longer.—*C. R. Bree; Stowmarket.*

Capture of Fumea retiella at Sheerness.—On the 1st and 2nd of this month, I had the pleasure of capturing thirteen specimens of this pretty semi-transparent insect, by sweeping the marine plants skirting the sea, about a mile from Sheerness; and I judge from my only procuring it where *Plantago maritima* grew that it must frequent this plant. I searched in vain for the cases and female: a young friend found it last year in a similar situation, four miles from Southend.—*Samuel Stevens; 24, Bloomsbury Street, June 18, 1850.*

Artificial introduction of Abraxas ulmata at Bolton-le-Moors.—A few days ago, taking an entomological stroll, in company with a couple of friends, through a plantation, consisting principally of elm, which lies within a mile and a half of Bolton, in a southerly direction, I was somewhat surprised at seeing a great number of the *Abraxas ulmata* in various parts of the plantation, lying about in all directions, some on the grass, some on the various undershrubs that frequently interrupted the path, and some on the branches of different kinds of trees, particularly the elm. We all (myself and two friends) immediately took as many specimens as we had a desire for, say fifty or sixty specimens each, and could easily have taken four times that number in the course of an hour's collecting, had we thought proper to have done so. Now as this species is generally represented in the books to be rare, or at least local, I was naturally led to make some inquiry as to the probable cause of its being so very abundant in the present locality. The information that I received was to this effect. Several years ago, a friend of mine, Mr. Finley Fraser, of Bolton-le-Moors, obtained a few eggs of the moth in question, from a person who had brought them from some place in Derbyshire: these eggs he first took to a plantation at Barrow Bridge, near Bolton, where he folded up a leaf of the *Ulmus campestris*, in which he carefully enclosed the eggs, and secured them from falling to the ground, by thrusting a pin through the leaf, taking care, of course, not to damage the leaf any more than could be avoided, for fear of its withering and falling off before the eggs were hatched; which casualty would probably have rendered his labours fruitless. The following year he had ocular proof of the success of his experiment, by seeing several specimens of the moth in the same locality in which he had left the eggs. The succeeding, and two or three following years, a great number of specimens were taken by collectors, several of whom reside in this neighbourhood; indeed there was such a run for them, that eventually the breed was caught up. Luckily, Mr. Fraser was aware of the eagerness with which the insect was searched for by collectors, and, from that circumstance, anticipating its final extinction, at least in the present locality, he procured a second lot of eggs, from Barrow Bridge, which he deposited in two or three other places in the neighbourhood of Bolton; adopting precisely the same method as before. Of the success of the second experiment, I had ample proof on the day alluded to at the commencement of this paper, as the plantation there

mentioned was one of the places in which the second lot of eggs was deposited. Perhaps of all species of *Lepidoptera* the *A. ulmata* is the most easy of capture, if the locality in which it is to be met with be known. It is extremely sluggish in its habits in the day time, suffering itself to be taken without offering the least resistance. If the weather has been recently wet, it may be found upon blades of grass, &c., with its wings fully expanded; and from its light colour, contrasting strongly with the verdure of the circumjacent herbage, it may be instantly detected. If the weather has been fine and calm for a few days, the insect is generally higher upon the branches of the trees, the least agitation of which will cause it to descend to the ground, when it may be picked up as before.—*James Holt; Eagley Bank, near Bolton-le-Moors, June 18, 1850.*

Micropteryx Calihella on the *Carices*.—It will probably be a surprise to collectors to learn that this insect frequents the *Carices* also, a tribe of plants not usually attractive to *Lepidoptera*: it occurs on them frequently in dense swarms. I am informed by a friend that it was noticed abundantly this season in North Wales, on *C. pendula*. Near Warrington, Mr. Cooke informs me, that it is equally abundant on *C. paniculata* and *C. acuta*; and I have taken it this spring, near Huddersfield, on *C. panicea* and *C. sylvatica*.—*Peter Inchbald; Storthes Hall, June 5, 1850.*

Palpi of Micropteryx.—My observation on *Micropteryx* (*Zool.* 2830) has, I find, been written rather hastily. It was made from weakened specimens, in which the vital functions were not very vigorous. When the insects are strong, and in active motion, the palpi are porrected, and moved briskly about as the insect advances as in *Coleoptera*, &c.—*R. F. Logan;*

Capture of Anchylophora cuspidata and Lampronia amænella at Sutton Park, near Birmingham.—A specimen of this rare Tortrix was captured in Sutton Park, on the 2nd of June, by one of the students of this college, a few of whom are pursuing the study of Entomology. Also, on the 9th of June, a specimen of the Tinea (*Lampronia amænella*) was taken very close to the same spot. Is not the figure of the latter insect in Wood, No. 1602, a mistake, having been transposed with 1601, which according to Stephens's Illustrations, H. Vol. iv. Plate 41, is *T. amænella*?—*Thomas M. Simkiss; St. Mary's College, Oscott, near Birmingham, June 21, 1850.*

Coleophora albitarsella, Bred.—I was agreeably surprised to breed from the *Coleophora* larvæ I had found feeding on *Glechoma hederacea* (ground ivy) in March and April, the beautiful, and hitherto so extremely rare, *albitarsella*. The species appears widely distributed, as I found the larvæ at Lewisham and at Dawlish; and Mr. Douglas met with it near Wickham.—*H. T. Stainton; Mountsfield, Lewisham, June 22, 1850.*

Note on Gelechia paucipunctella.—I have bred this species from Burdock heads, found near Folkstone, last December. Hence, both this species and *Lappella* feed on the seeds of the burdock. Does *Neuropterella* do so likewise?—*Id.*

Abundance of Pogonus Burellii at Sheerness.—This coleopterous insect, which has been a desideratum to many of the modern collections, I met with in some plenty (upwards of fifty) in the soft mud in the salt-flats, about two miles beyond Sheerness, on the 1st and 2nd of this month. When gentlemen go in search of this species, I should strongly recommend their providing themselves with a pair of navvie's boots.—*Samuel Stevens; 24, Bloomsbury Street, June 18, 1850.*

Proceedings of the Linnean Society.

Anniversary Meeting, May 24, 1850.—R. BROWN, Esq., President, in the chair.

G. R. Dodd, Junior, Esq., was elected a Fellow.

Mr. F. K. Eagle exhibited a remarkable decumbent variety of *Bromus mollis*, from the neighbourhood of Lowestoffe, in Suffolk.

An abstract of the accounts of the past year was read, which exhibited a balance in favour of the Society.

The following five members of the Council were removed: B. Botfield, Esq., J. Gould, Esq., A. Henfrey, Esq., G. Newport, Esq., and R. H. Solly, Esq.; and the following five Fellows were elected into the Council in their room: Prof. E. Forbes, E. Lankester, Esq., M. D., E. Newman, Esq., W. Spence, Esq., and Sir G. Staunton. The following officers were re-elected: R. Brown, Esq., President, W. Yarrell, Esq., Treasurer, J. J. Bennett, Esq., Secretary, and R. Taylor, Esq., Under Secretary.

June 4, 1850.—R. BROWN, Esq., President, in the chair.

Dr. Lankester gave an account of some peculiar bodies observed on the surface of the common star-wort (*Callitriche verna*). These bodies were of a stellate form, and consisted of eight cells, seven of which surrounded a central one. They were found on the outside of the plant, on the stem and leaves; and furnished beautiful objects for examination under the microscope. In the early stages of their growth, they appeared to be developed from the ordinary tissue of the plant. They were spheroidal in shape, and attached to the tissue by a broad pedicel beneath. They did not appear to be stomates; but resembled in their structure the hairs and scales found on the surface of the epidermis in aërial plants.

Part of a paper 'On the Botany of the Texas' was read by the Secretary, from W. Bollaert, Esq. The physical geography of the State, and some of the forest-trees were described.

The President nominated Sir W. J. Hooker, W. Yarrell, Esq., Dr. Horsfield, and Dr. Wallich, Vice-Presidents of the Society.

Proceedings of the Zoological Society.

Monthly General Meeting, June 6.—E. J. RUDOLPH, Esq., in the chair.

W. H. Twentymann, Esq., Dr. G. Fripp, and E. Lomax, Esq., were elected as Fellows. Miss Bertrand, A. N. Armani, Esq., W. Page Wood, Esq., M. P., Richard Blakemore, Esq., M. P., J. Taylor, Esq., J. Thrupp, Esq., and J. P. Stocker, Esq., were proposed as candidates for the Fellowship.

The Report of the Council stated that the visitors to the Gardens in the month of May, amounted to 39,977, being an increase of 21,658 over the corresponding month of 1849. The visitors from the 1st to the 5th of June amounted to 14,600.

Proceedings of the Entomological Society.

June 3rd, 1850.—G. R. WATERHOUSE, Esq., President in the chair.

The following donations were announced, and thanks ordered to be given to the donors: 'Entomologische Zeitung,' for April; by the Entomological Society of Stettin. 'Descriptions of three new Coleopterous Insects, by Messrs. Mulsant, Cl. Rey and Wachanru;' by M. Mulsant. 'Directions for Collecting and Preserving Specimens of Natural History in Tropical Climates;' by the author, Mr. S. Stevens.

The following gentlemen were balloted for and elected Subscribers: Mr. R. W. Meade, Bradford; Mr. C. R. Bree, Stowmarket; and Mr. John Dashwood, Barton-under-Needwood, Lichfield.

Mr. Bedell exhibited *Depressaria assimilella*, reared from larvæ found on broom; *Lithocolletis hortella* and *Tinea Zinckenii*, from West Wickham wood; *Ctenostoma Laburnella*? from fences near Beckenham; and *Coccyx Strobilella*, reared from cones of spruce-fir.

Mr. J. F. Stephens exhibited a shoot of *Ribes sanguineum* which had been quite killed by *Coccus Serpulæformis*, numbers of which were on the bark; he also stated that branches of apple-trees, in his garden, were killed by *Coccus Mytilloformis*.

Mr. Shepherd exhibited a specimen of *Cloantha conspicularis* recently caught flying at Darenth Wood.

Mr. Westwood exhibited the male and female of *Lyda fasciata*, one of our rarest Hymenoptera; also a shoot of a pear-tree on which the larvæ of this species had fed, showing the damage done by them. He observed, that he had taken them emerging from the earth, under the surface of which they had undergone their final change. He also exhibited leaves of a pear-tree attacked by a Lepidopterous case-making larvæ, probably *Coleophora Hemerobiella*; and he made some observations on the peculiar mode adopted by these curious larvæ to obtain the parenchyma of the leaves, on which alone they subsisted; and as some damage might accrue to the trees from their attack, he thought it desirable that it should be discovered when and where the eggs were deposited.

Mr. S. S. Saunders exhibited pupa-cases of *Rhopalum tibiale*, from a raspberry snag, from which the perfect insects had issued towards the end of May.

Mr. Stainton exhibited specimens of *Lithocolletis tenella*, hitherto one of our rarest species, but which he found abundant on hornbeam, at Wanstead, in May; also a species of the same genus, found at the same time and place, which was the *Illicifoliella* of his catalogue, and which he now proposed to call *Carpinicolella*; also three specimens of *Micropteryx mansuetella*, recently taken by Mr. C. R. Bree, in company with M. Calthella, at Northfield Wood, near Stowmarket, on *Mercurialis perennis*.

Mr. S. Stevens exhibited *Dryophila Anobioides* and *Hylastes rhododactylus*, also the stump of broom from Plumstead Wood, from which he had obtained them. He also exhibited a new species of *Dorytomus*, allied to *D. tæniatus*, from Wimbledon Common; *Pogonus Burrellii*, found in soft mud on the shore at Sheerness; splendidly coloured specimens of *Lixus bicolor*, from Deal, and *Psyche retiella*, from Southend; the last insect he thought was attached to *Plantago maritima*.

Mr. W. W. Saunders exhibited some insects set up as specimens of the method of preserving and displaying used by Mr. Ernard, who was about to proceed to Surinam on a collecting expedition. With them were some spiders, of which the form and

colour were beautifully retained. He also stated that the collection of insects belonging to M. Saville, containing types of all the species described by him, was offered for sale. Mr. Saunders also exhibited some leaves of *Rhododendrons* greatly attacked by *Otiorynchus sulcatus*; also two different kinds of pupæ enclosed in net-like cases, and an anomalous pedunculated little bag which appeared to be full of eggs of an insect, this receptacle being in the centre of a much larger bladder-like formation; all collected at Santarem by Mr. Wallace.

Mr. Weir exhibited a singular Lepidopterous insect recently captured, more like an *Argyresthia* than any other genus, but not agreeing with any known species.

Mr. Smith, on the part of Mr. Gould, exhibited four different species of Bombs found impaled on thorns, and stated that it was Mr. Gould's opinion that they were not so fixed by shrikes as commonly believed. Mr. Smith also exhibited a quantity of the eggs of *Meloe*, and said that another batch, deposited by a female on the 7th of April, had hatched on the 2nd of June. On the 27th of April he took eleven specimens of *Pediculus Melittæ* from the bodies of *Melecta punctata*, which was much earlier than any larvæ of *Meloe* were ever known to be hatched; and this fact tended more strongly than ever to confirm his opinion that *Pediculus Melittæ* of Kirby, was not the larva of a *Meloe*. He mentioned as a curious fact, that all bred specimens of Hymenoptera, were larger than those captured at large. He then exhibited a new British species of *Nomada*, a new British species of *Crabro*, and a new species of *Chrysis*, taken near Bristol; all from the collection of Mr. Hewitson.

Mr. Stainton, on behalf of Mr. Logan, exhibited some small Lepidopterous larvæ, which drew up the tops of *Helianthemum vulgare*, at Arthur's Seat, near Edinburgh; and he stated that from the leaves of *Helianthemum*, exhibited at the April meeting, he had reared *Elachista Staintoni*.

The following descriptions of some new Aculeate Hymenoptera from Epirus, by Mr. S. S. Saunders, were then read, accompanied by some observations on their structure and habits:—

Family MUTILLIDÆ, *Leach*.

Genus MYRMOSA, *Latr.*

MYRMOSA NIGRICEPS.

Niger, thorace rufo, antice rectè truncato, angulis acutis; abdominis segmentibus pilis albidis fimbriatis; alis obscuris; antennis pedibusque nigris. Mas.

Long. corp. $\frac{7}{8}$ — $\frac{1}{2}$ unc. Exp. alar. 1 unc.

Family SCOLIADÆ, *Leach*.

Genus PARAMERIA, *Savigny*.

PARAMERIA GRÆCA.

Castanea, pilis albidis densè vestita; femoribus, tibiis, mandibulorum apice, costaque marginem internum circumflectenti, piceis; abdominis segmentibus quatuor basalibus (præter petiolum) nigris; secundo tertioque fascia apicali medio interruptâ, utrinque emarginatâ, lateribus haud attingenti albâ, alis abbreviatis, obscuris, anteriorum margine externo profundè sulcato deinde disco usque medium inciso; oculis nigris. Femina.

Long. corp. $\frac{3}{4}$ unc. Exp. $\frac{1}{4}$ alar. $\frac{1}{2}$ unc.

Family EUMENIDÆ, *Westwood*.

Genus RAPHIGLOSSA, *Saunders*.

Caput magnum subrotundum, subtus obliquè complanatum, thoraci ferè latitudine

coæquale. Oculi internè emarginati. Mandibulæ obtusæ, apice transversè serrato. Labium longissimum, intra femora acufornè retrorsum, cum maxillis vix brevioribus, productum. Clypeus anticè excavatus, labium porrectum ad recipiendum et dirigendum. Thorax truncato-convexus, medio vix dilatatus. Antennæ, thoraci ferè longitudine coæquales. Alæ cellulâ radiali secundâque cubitali appendiculatis; cubitalibus quatuor, quarum secunda et tertia nervas recurrentes accipiunt, primâ magnâ, basi ampliori; secundâ parvâ subtriangulari, lateribus anticè valdè approximatis, nervam recurrentem ubi medio appendiculatâ recipienti; tertiâ subquadrâtâ, externè latiori, secundum recurrentem prope basin accipienti; apicali clausâ.

Sp. 1. *RAPHIGLOSSA EUMENOIDES*.

Elongata, nigra, flavo-notata, antennis pedibusque testaceis, abdomine flavo-fasciato.

Long. corp. $\frac{3}{4}$ — $\frac{1}{2}$ unc. Exp. alar., 1 unc.

Habitat in Epiro, in rubis exsiccatis prope Sinum Ambracicum nidificans.

Sp. 2. *RAPHIGLOSSA ODYNEROIDES*.

Nigra, flavo-notata, labio pectoris ultra medium subtus producto; pedibus flavis, basi nigris; abdomine flavo-fasciato; *maribus*, antennis nigris subtus flavescens; *feminis*, capite maximo, antennis flavescens, prope apicem obscuris.

Long. corp. 6—7 lin ♂, 8½ lin ♀. Exp. alar. 10½ lin. ♂—1 unc. ♀.

Habitat in Epiro cum præcedentibus.

This paper was accompanied by two plates of illustrations, presented by the author.

Mr. Yarrell read a letter addressed to him by Dr. Lukis, of Guernsey, containing some observations on the natural history of the Channel Islands, and stating, among other things, that each island had to a certain extent a fauna of its own, as certain reptiles, quadrupeds and insects found in one were not found in another, although the distance between them was not more than eight miles in one case, and twenty miles in another. Mr. Yarrell mentioned as a fact within his own knowledge, that although the water in the canal at Stockbridge, Hants, was always one degree colder than in the adjoining river Test, yet the May-flies invariably appeared from the canal some days sooner than from the river.—*J. W. D.*

Proceedings of the Microscopical Society of London.

June 12, 1850.—DR. ARTHUR FARRE, President, in the chair.

Edward Hicks Finch, Esq., was balloted for, and duly elected a member of the Society.

A paper by H. C. Sorby, Esq., "On the Occurrence of Non-gymnospermous Exogenous Wood in the Lias, near Bristol," was read. After stating that it was the general opinion that wood of this description did not occur in rocks, of the age of the Lias, the author went on to describe a specimen of fossil wood, purchased by him a

few years ago of a fossil-dealer, in Bristol. The appearance and chemical composition of this specimen, perfectly agreeing with those of the coniferous wood so common in the lias leave no doubt as to this being from that formation. Drawings of its structure were exhibited, leaving no question of this wood being a true non-gymnospermous exogen; and its occurrence in the lias was considered by the author as a fact of considerable importance, as proving that trees of that character existed at a much earlier period than has hitherto been generally supposed.

Mr. Legg read a paper "On the Minute Structure of the Calcareous Shells of some recent Species of Foraminifera," by W. C. Williamson, Esq. In introducing the subject of this paper, the author remarks, that notwithstanding the large amount of attention that has been given to the study of the Foraminifera within the last few years, there is still very much of obscurity resting upon their history; wide differences of opinion existing as to their true zoological position, and as to the objects comprehended in the group of animals so designated. After alluding to a former memoir (that on the *Polystomella crispata*) the author proceeds to describe some peculiar forms, chiefly belonging to the genera *Amphistegina*, *Orbiculina*, and *Nonionina*, detailing the structure of their calcareous shells, and pointing out the amount of light which they throw upon those of *Nummulina* and *Orbitoides*, to which so much attention has recently been paid by Dr. Carpenter and Messrs. Jolie and Leyméne.

On making a horizontal section of the shell of *Amphistegina gibbosa*, this species exhibits the ordinary contour seen in so many of the Foraminifera; viz., a spiral arrangement of cells separated from each other by calcareous septa: a vertical section shows that the object is not only inequilateral; its inner convolutions especially, being more convex on one surface than on the other, but that the convolutions are not all in one plane; the earliest formed spirals being on a lower level than those of a more recent growth. In the arrangement of the septa, this species differs but little from the ordinary type of the Rotaline forms; one aperture exists in each septum, communicating continuous chambers; over the inner floor of each cell are numerous calcareous papillæ and projecting pillars; these are considered as secondary growths, deposited after the segment has surrounded itself with a calcareous covering, acting as pillars and buttresses to strengthen the habitation of the creature. In tracing the direction of the spiral outline from the external extremity, the parietes become thickened: the parietes of the shell consist of a great number of parallel laminæ, traversed in certain parts by long and well-defined tubes for the transmission of pseudopodia, whilst in other portions (especially the central portion, and the angular external margin of each segment) these tubes are wanting; these laminæ are supposed to have been secreted by the animal exteriorly, and the pseudopodium tubes are continued as each successive layer is deposited; occasionally, however, the tubes (especially in the umbilical region) have become blocked up by the more recent investments. After thus covering over at least a considerable part of the exterior of the shell with new lamellæ, the soft animal appears to have retreated to the limited area, which the new segment was ultimately destined to occupy, and here, the new lamellæ being continuously prolonged, instead of remaining in close contact with the pre-existing shell, have sprung up from its surface in order to form a calcareous investment for the newly formed segment, which would in its turn be invested and rendered dexter by numerous repetitions of the same process.

A portion of the horizontal section of *Amphistegina Antillarum* was described as having an addition to the ordinary arrangement of the septa common to the genus,

each cell or chamber in this species being subdivided into square compartments by secondary septa, arranged at right angles to the primary ones: the periphery of the horizontal section in this species consists of a network of anastomosing canals, while the adjacent parietes of the shell are freely supplied with true pseudopodium tubes.

The next object described was a species of *Nonionina* from Manilla; in this shell all the septa are rendered distinctly visible externally, by the marked contrast which exists between their solid and consequently translucent texture, and the more opaque, yellowish-white parietal tissues, in which the foramina are found, also is remarkable for its thickened peripheral margin. In the parietes of this shell we again find a lamellar structure, similar to that occurring in *Amphistegina gibbosa*; the greater portion of the shell is perforated with the usual pseudopodium tubes.

The next group to which attention was directed is that comprehended in D'Orbigny's genus *Orbiculina*, including *O. complanata*, and previously designated *Orbitoides* and *Marginipora*, which are still regarded by many British zoologists as true Bryozoa. In *O. complanata*, the central or primordial cell is a large spherical cavity, partially separated from an adjoining one by an imperfect intervening septum: the subsequently added cells are arranged round these two, as a central nucleus: at first they appear as oblique rows, and then as concentric circles, consequently the primordial cell does not occupy the geometrical centre of the disk. The cells are single, undivided cavities, elongated vertically, and communicating laterally with the contiguous ones belonging to the same concentric row, by means of large central orifices: they also communicate with those which, though contiguous, belong to different circles, by means of similar orifices; the apertures are all arranged in the central plane of the organism. From this cause the external margin of the disk has always exhibited a series of marginal apertures, whence the name of *Marginipora*: the author has not yet been able to detect any superficial orifices or pseudopodium tubes in this object.

In the section of a large species of *Orbiculina*, from Tonga, the same general features were observed as in the preceding species, *viz.*, a primordial cell, and three others, round which are other cells; but instead of the surface exhibiting the closed extremities of a series of oblong cells, as in that species, we here find concentric rows of small oval fossæ. These fossæ are partially closed inferiorly by a rounded calcareous body, on each side of which are small circular apertures communicating with the tissues below. In this species, instead of having but one canal connecting each cell with the contiguous one of an adjoining circle, we have here several. The principal distinction between the internal structure of *O. complanata* and that from Tonga, is merely such as arises from the multiplication of strictly analogous parts. A considerable difference, however, occurs in the development of the cells in the Tongese species: instead of increasing by slow degrees, and the addition of several rows while they ultimately form a complete circle, we have here a complete circle at once formed around the primordial cell.

In comparing the development of these *Orbiculinae* with those of other well-known Foraminifera, we see peculiarities attending the former examples, yet strictly conforming to one general type: the existence of a central cell, more or less distinct from those by which it is surrounded, has been shown to characterize nearly all the Foraminifera; on the other hand, the author is not acquainted with any of the Bryozoa whose polypodom exhibits any such structure, and concludes that whilst the struc-

tures just described find no analogues amongst the polypodoms of the Ciliobranchiate Polyps, they do exhibit a close conformity to the typical contour which prevails amongst the true Foraminifera. In confirmation of the above reasoning, a description is given of the structure of *Orbicula adunca*. This elegant Foraminifera has long been one of the best known of recent species; it its young state it is one of the most abundant organisms in the Cuban sand: in this immature form it appears a Foraminifera of the ordinary spiral type; gradually, however, the posterior angles of the new segments, instead of continuing to be prolonged over the dorsum of the shell, begin to terminate more abruptly; this change becomes increasingly conspicuous as each new segment is added, the angle at length becomes recurved, verges towards the opposite portion of the corresponding segments, giving more and more a reniform contour to the shell, until the last three or four segments are frequently completely cycloid.

Thus the cycloid form, which in the disks from Tonga is exhibited from the first, and which soon becomes the normal condition of *O. complanata*, is only attained in *O. adunca* at a very advanced stage of growth; the existence of this affinity is further shown by an examination of the internal part of *O. adunca*. From the close typical resemblances of structure and development that are seen to exist in these forms, the author is satisfied as to the correctness of M. D'Orbigny's opinion that *Orbiculum* and its allies are true Foraminifera, and not Zoophytes.—J. W.

Arrival of the Hippopotamus at Regent's Park.

(By our own Reporter).

THE hippopotamus, on the morning after his arrival in London, might truly say, "I awoke and found myself famous." The anxiety of the public to obtain a glimpse of him has exceeded the expectations, sanguine as they were, of the gentlemen more particularly concerned in his importation. This is as it should be: in the days of the Emperors, the hippopotamus was exhibited in the amphitheatre at Rome, but from that time to the present we have only known the beast by his hide in the British Museum, and by the fancy portraits of him in the picture-books. All honour to Abbas Pacha, to Mr. Murray, and especially to Mr. Mitchell: for to their generosity, care, and enterprise we are solely indebted for the opportunity of seeing the hippopotamus alive. His capture was on this wise. A party of hippopotamus-hunters disporting themselves on the banks of the Nile, far up, and where its banks are margined with brush-wood, wounded his mother by a rifle-ball, which sunk deep into the vital region about the heart: but the poor creature impelled by that *storgé* which is so beautiful a trait in the character of brutes, refused to quit the spot where her offspring lay concealed in the bushes. The hun-

ters well understood her movements, and rested not till the little one broke cover and plunged headlong in the river. Another plunge took place at the same instant; a boat-hook was plunged in his fat side, and there he was held till one of the hunters took him up, like a great over-grown dropsical baby, in his arms, and put him gently into the boat. The party duly estimated the value of their prize; they healed his wound, and brought him by easy journeys down the Nile to Cairo, feeding him on milk, of which he consumed an inordinate allowance, creating a dearth of that precious article in an unsophisticated land where its manufacture is yet unknown, and where the natives depend on their milch kine for the principal supply. His residence at Cairo was a perpetual triumph; he was the observed of all observers, for to the cockneys of Cairo the hippopotamus was as great a novelty as to those of London. Embarked on board the Ripon, public admiration was divided between him and his fellow-passengers, the black princes: he submitted to receive this divided homage with much resignation, sitting sedately on his haunches and curling up his mouth into a sardonic smile. He passed the ordeal of special train and special van with perfect nonchalance, and, arrived at the gates of the gardens in Regent's Park, he exchanged a few grunts with his Arab keeper, and waddled off in his wake, for all the world like a prize pig following his feeder for his diurnal allowance of moistened meal, to the inexpressible relief of our worthy secretary, Mr. Mitchell, who, as commander-in-chief of the proceedings, had been deeply pondering the perils and casualties of the transit. Once, and once only, the stranger cast a wistful eye at the turbid waters of the Regent's Canal as though he longed for a plunge: for a moment our hearts, to use a beautiful metaphor, were in our mouths: but no! he abandoned the insane idea as soon as formed, and waddled on after the Arab, as before.

Next morning Mr. Hippopotamus began to hold levées: among his earliest visitors we observed the great Professor Owen, who appeared to be jotting down hard words about his thews and muscles, for some abstruse repository of science: Harrison Weir, pencil in hand, taking his effigy for the *Lady's Paper*; by the way, we peeped over the shoulder of the cunning limner, and found him touching up the picturesque figure of the Arab with infinite gusto, doubtless concluding, with a profound knowledge of human nature, that the ladies would prefer the man to the beast: *the Wolff*, his eye following every movement of the creature as he rolled upon the waters of his bath, trusting to his inimitable pencil to transfer that broad

visage to some broad sheet of illustration : *the Doyle*, whose racy outline has since appeared in the inestimable pages of 'Punch': in a word, all the illustrious, by pen or pencil, have enjoyed the honor of a presentation.

How shall we describe him ? To begin, he is seven feet in length and seven feet in girth : we take this on trust, and so must our readers, for we did not measure him. His four massive legs are so short, as barely to keep his belly clear of the ground ; each foot has four toes, each toe armed with a hoof ; the outer hoof on each side being smaller than the inner ones ; the foot is tolerably compact. The tail is short, naked, very thick at the base and gradually tapering, but not to a point. The skin is naked ; dark brown on the back and sides ; lighter and flesh-coloured about the ears, eyes, mouth, throat, and belly. The neck is remarkably massive ; the face and muzzle broad ; the ears small ; the gape enormous, and opening upwards towards the eyes ; open or shut, it has a most extraordinary appearance, a fixed, conceited, self-satisfied smile, or a broad grin. The eyes are very prominent, and the animal swivels them in all directions : this kind of eye is observable in many amphibious animals, as the frog, &c. : it is capable of looking directly upwards when immersed in the water : when on land, it follows the keeper with its eyes without any motion of the head, an action that every one must have observed in dogs. The nostrils, in being valvular, resemble those of seals ; they are capable of being closed at the pleasure of the animal, and when closed appear as longitudinal slits : when at rest it closes them after every inspiration.

On land its gait is awkward, slow, and lazy ; the Arab, holding a handful of green tares, walks steadily and sedately before ; and the hippopotamus, occasionally opening his vast cavern of a mouth plucks out a few tares, and allowing them to fall, waddles steadily and sedately behind ; and as this exhibition takes place in the large giraffe-paddock, there is ample room for observing him : the Arab and his charge continually emitting a cheerful grunt expressive of satisfaction. It feeds on a porridge of meal just such as pigs glory to fatten on, but moistened with milk instead of water. After finishing his repast he gave a grunt louder and more imperative than before : this was a call for water to wash his mouth. Taking a good mouthful, he washed it about for some time, and then squirted it out in a sharp stream from both corners of his mouth. Now the bathing operation was performed ; he slowly descended the steps of his tank and gently floated into the water : when afloat, the ease, and indeed grace, of

his actions, contrasted in a most marked manner with his clumsy gait when on shore ; he plunged, dived, and dashed about in the water in a jovial, rollicking, free-and-easy manner, that showed how perfectly he felt at home. He lays at the bottom like a stone ; he floats on the surface like a cork ; he remains submerged eight minutes at a time.

No trait in the character of this animal is more interesting than his attachment to his keeper : he follows the Arab wherever he pleases to lead, and is never, seemingly, happy out of his sight : at night the Arab is obliged to sleep so near him as that the creature may touch him ; but as the beast is rather too bulky for a bed-fellow, a girth of seven feet, exceeding even the average admeasurement of an alderman, the Arab has a sleeping apartment railed off, and, putting a foot through the rails, allows the creature to assure himself, whenever he wakes, that his care-taker is at hand.

R.

Observations on the adjustment of the relations between the Animal and Vegetable Kingdoms, by which the vital functions of both are permanently maintained.—This communication will consist of a detail of an experimental investigation, which has been carried on for nearly the last twelve months, and which appears to illustrate, in a marked degree, that beautiful and wonderful provision which we see everywhere displayed throughout the animal and vegetable kingdoms, whereby their continued existence and stability are so admirably sustained, and by which they are made mutually to subserve, each for the other's nutriment, and even for its indispensable wants and vital existence. The experiment has reference to the healthy life of fish preserved in a limited and confined portion of water. It was commenced in May, 1849, and the subjects chosen were two small gold-fish. These were placed in a large glass receiver of about twelve gallons capacity, having a cover of thin muslin stretched over a stout copper wire, bent into a circle, placed over its mouth, so as to exclude, as much as possible, the sooty dust of the London atmosphere, without, at the same time, impeding the free passage of the atmospheric air. This receiver was about half filled with ordinary spring water, and supplied at the bottom with sand and mud, together with loose stones of larger size of limestone tufa, from the neighbourhood of Matlock, and sandstone ; these were arranged so that the fish could get below them, if they wished so to do. At the same time that the fish were placed in this miniature pond, if I may so term it, a small plant of the *Vallisneria spiralis* was introduced, its roots being inserted in the mud and sand, and covered by one of the loose stones, so as to retain the plant in its position. The *Vallisneria spiralis* is one of those delicate aquatic plants generally selected by the microscopist for the exhibition of the circulation of the sap in plants. It throws out an abundance of long, wiry, strap-like leaves, of about a quarter of an inch in breadth, and from one to three feet in length ; these leaves, when the sun shines on them, evolve a continued stream of oxygen gas, which rises in a current of minute bubbles, particularly from any part of the leaf which may have received an injury.

The materials being thus arranged, all appeared to go on well for a short time, until circumstances occurred which indicated that another and very material agent was required to perfect the adjustment, and which, from my not having thought of it at the time of commencing the experiment, had not been provided against. The circumstances I allude to arose from the internal decay of the leaves of the *Vallisneria*, which became yellow from having lost their vitality, and began to decompose; this, by accumulation, rendered the water turbid, and caused the growth of mucus, or green, slimy matter on the surface of the water, and on the sides of the receiver. If this had been allowed to increase, I conceive that the healthy life of the fish must have suffered, and probably their vital functions have been destroyed. The removal of these decaying leaves from the water, therefore, became a point of permanent importance to the success of the experiment. To effect this, I had recourse to a very useful little scavenger, whose beneficial functions have been too much overlooked in the economy of animal life,—I mean the water-snail, whose natural food is the very green, slimy growth, or mucus and decaying vegetable matter, which threatened to destroy the object which was wished to be obtained. Five or six of these creatures—the *Limnæa stagnalis*—were consequently introduced, and, by their continued and rapid locomotion and extraordinary voracity, soon removed the cause of interference, and restored the whole to a healthy state, thus perfecting the balance between the animal and vegetable inhabitants, and enabling both to perform their vital functions with health and energy. So luxuriant was the growth of the *Vallisneria* under these circumstances, that, by the autumn, the one solitary plant that had been originally introduced, had thrown out myriads of off-shoots and suckers, thus multiplying to the extent of upwards of thirty fine, strong plants; and these threw up their long, spiral, flowering stems in all directions, so that, at one time, more than forty blossoms were counted lying on the surface of the water.* The fish have been lively, bright in colour, and appear very healthy, and the snails also—judging from the enormous quantity of gelatinous masses of eggs which they have deposited on all parts of the receiver, as well as on the fragments of stone—appear to thrive wonderfully, and, besides their functions in sustaining the perfect adjustment of the series, afford a large quantity of food to the fish in the form of the young snails, which are devoured as soon as they exhibit signs of vitality and locomotion, and before their shell has become hardened. Thus we have an admirable balance sustained between the animal and vegetable kingdoms, and that in a liquid element. The fish, in its respiration, consumes the oxygen held in solution by the water as atmospheric air; furnishes carbonic acid; feeds on the insects and young snails; and excretes material well adapted as a rich food to the plant, and well fitted for its luxuriant growth. The plant, by its respiration, consumes the carbonic acid produced by the fish, appropriating the carbon to the construction of its tissues and fibre, and liberates the oxygen in its gaseous state to sustain the healthy functions of the animal life, at the same time that it feeds on the rejected matter, which has fulfilled its purposes in the nourishment of the fish and snail, and preserves the water constantly in a clear and healthy condition,—while the slimy snail, finding its proper nutriment in the decomposing vegetable

* Since the reading of this paper, twenty-eight strong plants of *Vallisneria* have been weeded out of the glass receiver as being more than sufficient for the purpose required.—*R. W.*

matter and minute conservoid growth, prevents their accumulation by removing them from the field, and, by its vital powers, converts what would otherwise act as poison, into a rich and fruitful nutriment, again to constitute a pabulum for the vegetable growth, while it also acts the important part of a purveyor to its finny neighbours.—*Robert Warington.*

An Army of Monkeys: a Novel Suspension Bridge.—"They are coming towards the bridge; they will most likely cross by the rocks yonder," observed Raoul. "How—swim it?" I asked. "It is a torrent there." "Oh, no!" answered the Frenchman; "monkeys would rather go into fire than water. If they cannot leap the stream, they will bridge it." "Bridge it! and how?" "Stop a moment, Captain—you shall see." The half human voices now sounded nearer, and we could perceive that the animals were approaching the spot where we lay. Presently they appeared on the opposite bank, headed by an old gray chieftain, and officered like so many soldiers. They were, as Raoul had stated, of the comadreja or ring-tailed tribe. One—an aide-de-camp, or chief pioneer, perhaps—ran out upon a projecting rock, and, after looking across the stream, as if calculating the distance, scampered back, and appeared to communicate with the leader. This produced a movement in the troop: commads were issued, and fatigue parties were detached, and marched to the front. Meanwhile several of the comadreas—engineers, no doubt—ran along the bank, examining the trees on both sides of the arroyo. At length they all collected round a tall cotton-wood tree that grew over the narrowest part of the stream, and twenty or thirty of them scampered up its trunk. On reaching a high point, the foremost, a strong fellow, ran out upon a limb, and, taking several turns of his tail around it, slipped off, and hung head downwards. The next on the limb, also a stout one, climbed down the body of the first, and whipping his tail tightly round the neck and fore-arm of the latter, dropped off in his turn, and hung head down: the third repeated this manœuvre upon the second, and the fourth upon the third, and so on, until the last upon the string rested his fore-paws on the ground. The living chain now commenced swinging backwards and forwards, like the pendulum of a clock: the motion was slight at first, but gradually increased, the lowermost monkey striking his hands violently on the earth as he passed the tangent of the oscillating curve. Several others upon the limbs above aided the movement. This continued until the monkey at the end of the chain was thrown among the branches of a tree on the opposite bank. Here, after two or three vibrations, he clutched a limb, and held fast. This movement was executed adroitly, just at the culminating point of the oscillation, in order to save the intermediate links from the violence of a too sudden jerk! The chain was now fast at both ends, forming a complete suspension bridge, over which the whole troop, to the number of four or five hundred, passed with the rapidity of thought. It was one of the most comical sights I ever beheld, to witness the quizzical expression of countenances along that living chain! The troop was now on the other side, but how were the animals forming the bridge to get themselves over? This was the question that suggested itself. Manifestly, by number one letting go his tail. But then the *point d'appui* on the other side was much lower down, and number one, with half-a-dozen of his neighbours, would be dashed against the opposite bank, or

soused into the water. Here, then, was a problem, and we waited with some curiosity for its solution: it was soon solved. A monkey was now seen attaching his tail to the lowest on the bridge, another girdled him in a similar manner, and another, and so on, until a dozen more were added to the string. These last were all powerful fellows; and running up to a high limb, they lifted the bridge into a position almost horizontal. Then a scream from the last monkey of the new formation warned the tail end that all was ready; and the next moment the whole chain was swung over, and landed safely on the opposite bank. The lowermost links now dropped off like a melting candle, whilst the higher ones leaped to the branches, and came down by the trunk: the whole troop then scampered off into the chapparal and disappeared!—*Capt. Reid's Adventures in Southern Mexico.*

A Calf ejecting Snakes.—The following most peculiar circumstance appeared in a Kentish paper this week, and there is not much doubt I conceive of its being a veritable occurrence, the name of the owner and place being given: it will at least surprise, if not amuse the readers of the 'Zoologist.' "A cow, belonging to W. Cowburn, Esq., of Edenbridge, had a calf about two months ago, which has been very sickly for five weeks. Medicine was given, and soon after it brought away a snake; one or two others followed every succeeding day, and in the whole, eleven snakes were counted, all dead. Some of them are entire, and others in pieces. The calf is a little better, and is now under the care of Mr. Cowburn's bailiff. The snakes are preserved." Such is the account given of this most extraordinary ejection of creatures as extraneous to the quadruped in the usual course of nature, as they are dissimilar in form. The species is not mentioned, but most likely it was the common snake (*Coluber natrix*) and one might feebly premise that a string of eggs must have been taken in by the calf when feeding, as it was sufficiently advanced in growth to obtain an independent livelihood by munching the grass, and in the course of time, through the warm temperature which surrounded them, they became hatched, causing the animal which had taken so much care of them, an uneasiness only eased by physic, which seemingly proved fatal to the reptiles, testifying the truth of the aphorism "What is one creature's food is another's poison."—*W. H. Cordeaux; Canterbury, July 4, 1850.*

Note on the common Squirrel.—The destructive properties of this truly elegant and active little inhabitant of our woods, are not generally known: with the exception of the remarks by the Rev. W. T. Bree, (Zool. 2842) we have not met with any in the numerous works which we have consulted on natural history. It certainly is admitted that it feeds chiefly upon the fruits of the pine, fir and larch; on acorns, beech-mast, chestnuts, walnuts, filberts, apples, and other cultivated fruits, as also the bark of young trees. During the year 1847, there was an abundance of acorns, mast, and nuts in the woods and plantations here, but the year 1848 was a total failure of these, their natural food; in the absence of which, they commenced a wholesale destruction of our young oaks, beech, larch, fir, pine and poplar trees, by stripping the bark off the trunks of the trees as effectually as if it had been done by the hands of man. Nor was this done in small patches here and there, as we frequently see it even where they have an abundance of other food, but actually in patches of from one to ten feet in length, and quite round the tree, and gnawed to such a depth, even in the solid wood, that the slightest wind broke off the tops, giving the trees an appearance as if they had been headed back by some instrument. Several of these tops we measured and found them from four to ten feet in length. It was not small trees alone that

suffered, but trees of large dimensions also, and which have not yet regained their outer coating. The poplar, larch, and beech, suffered the most. So that we, like the Rev. Mr. Bree, were compelled against our inclination to reduce their numbers somewhat, and had no less than 250 killed, yet we still have plenty. Mr. Bree alludes to his losing his nuts: we have yearly to put up with a considerable loss in this way. I find they generally commence their attack on our nuts, when their winter store is finished, and the kernels are about the size of a pin's head: they do not remain in the nut-bushes, but having procured a good sized bunch, off they start to some favorite tree. They serve our walnuts in the same manner: and it is a very frequent occurrence to see three or four squirrels at a time running across the lawn, or over some gravel walk, with a bunch of green walnuts in their mouths, nor will they drop them even when hard pursued, till they have reached a tree, when up they go, and out of danger, clasping the nuts in their paws, commence chattering at one, as much as to say, "I am out of your reach; catch me if you can." From this tree of escape they will descend when all is quiet, and scamper off to their hiding place; and having deposited their load, return for a similar one. At this sport of theirs we have watched them for hours at different times. The Rev. Mr. Bree is perfectly correct, in our opinion, when he says that squirrels "have, generally speaking, instinct enough to discard the light nut that contains no kernel." We have gathered as much as a bushel of such nuts from the bushes to one half of sound ones, which had been left by Mr. Squirrel as our share. They are particularly fond of apples, and cherries, the former of which they carry off as they do the walnuts, for their winter stores, from which we have taken (but replaced) apples, pears, walnuts, filberts, nuts, chest-nuts, mast, acorns, plum and cherry stones.—*J. McIntosh; Milton Abbey, June, 1850.*

A List of the Birds of Roxburghshire.

By ARCHIBALD JERDON, Esq.

As I do not think the readers of the 'Zoologist' have had much information as to the Ornithology of the South of Scotland, I have drawn up the following list of the birds of this county, derived from the observations of about ten years, chiefly in the neighbourhood of Jedburgh, and which I trust may not be uninteresting, as showing the differences between this and other districts, of the Ornithology of which lists have already been recorded in the 'Zoologist.'

I may remark that we have considerable variety of soil and situation in Roxburghshire, but are deficient in woods of any extent, and also in lakes or ponds, of which scarcely any are to be found.

I. Resident Natives, 38.

Kestrel
Sparrow Hawk
Hen Harrier

Common Buzzard
Barn Owl
Dipper

Blackbird	Rook
Hedgesparrow	Jackdaw
Robin	Magpie
Golden-crested Regulus	Creeper
Great Tit	Wren
Blue Tit	Kingfisher
Cole Tit	Ringdove
Marsh Tit	Pheasant
Long-tailed Tit	Black Grouse
Yellowhammer	Red Grouse
Chaffinch	Partridge
House Sparrow	Heron
Greenfinch	Snipe
Common Linnet	Moorhen
Bullfinch	Coot
Carriion Crow	Wild Duck

Of birds of prey the *Kestrel* and *Sparrow Hawk* are the only common and widely dispersed species.

The *Hen Harrier* and *Common Buzzard* occur rarely and occasionally. An example of the latter bird was shot near Edgaston, in this neighbourhood, two or three years ago, and was considered a great rarity. It is said to be of more frequent occurrence in the vicinity of the Cheviot Hills.

The *Barn Owl* is rather common, haunting the old oak woods and scaurs on the banks of the river Jed.

Note.—None of the shrikes have occurred in this district as far as I am aware.

The *Dipper* is abundant by all our rivers and burns.

The *Blackbird* is the only species of the genus *Turdus* that can be called a resident, as both the song thrush and the missel thrush leave us for a time in winter.

The *Hedgesparrow* and *Robin Redbreast* are common and plentiful.

The *Golden-crested Regulus* is also common, especially in Scotch-fir plantations, and is seen even in the depth of winter. This bird has a feeble little song in spring.

Of the Titmice, the *Great Tit*, *Blue Tit*, *Cole Tit* and *Long-tailed Tit*, are common and abundant. The *Marsh Tit* is much less common, though I generally see some examples of it every year.

The *Yellowhammer* is common and plentiful.

Note.—The common bunting is not found in Roxburghshire, which is rather unaccountable. Neither have I observed it in the adjoining

counties of Berwickshire and East Lothian. It would appear to be a very local bird in Scotland.

The *Chaffinch*, *House Sparrow*, and *Greenfinch* are common. Large flocks of the greenfinch are to be seen in winter and early spring feeding on the stubbles and newly-sown lands, often accompanied by chaffinches and a few yellowhammers.

The *Common Linnet* is by no means a common bird in this district, and even in upland parts of the county is not often met with. Small flocks are sometimes seen in the low grounds in winter and early spring.

The *Bullfinch* is rather rare, being only met with in particular localities. In early spring one or two pairs generally make their appearance in gardens or orchards, intent on the destruction of blossom-buds of plums or cherries, but during the summer months they are seldom to be seen, retiring to sequestered woods to breed.

The *Carrion Crow*, *Rook* and *Jackdaw* are common.

The *Magpie* is also common, though not so abundant as the carrion crow.

Note.—The hooded crow and the jay do not occur in Roxburghshire.

The *Common Creeper* is generally distributed.

The *Wren* is abundant everywhere.

The *Kingfisher* is now a rare bird, though ten or twelve years ago its nest was not unfrequently found by the banks of the Jed.

The *Ringdove* is abundant everywhere.

The *Pheasant*, *Black Grouse*, *Red Grouse* and *Partridge* are common in their respectively suitable localities.

The *Common Heron* is generally dispersed though not abundant. There is a small heronry at Wells, on Rule Water, about five miles from Jedburgh.

The *Common Snipe* may be considered as a resident native, although very capricious and uncertain in its movements, and by no means common. Snipes may be found here and there at almost every season of the year, and some certainly breed on our moors.

The *Moorhen* is common by our river sides.

The *Coot* is only seen on ponds and preserved pieces of water.

The *Wild Duck* is common, though not abundant.

II. *Migrant Natives*, 33.

Long-eared Owl
Spotted Flycatcher
Song Thrush

Missel Thrush
Redstart
Whinchat

Stonechat	Cuckoo
Wheatear	Swallow
Sedge Warbler	Sand Martin
Blackcap	House Martin
Garden Warbler	Swift
Common Whitethroat	Nightjar
Wood Warbler	Golden Plover
Willow Warbler	Curlew
Pied Wagtail	Peewit
Gray Wagtail	Ringed Plover
Tree Pipit	Common Sandpiper
Meadow Pipit	Landrail
Skylark	Black-headed Gull
Black-headed Bunting	

The *Long-eared Owl* is the only one of the *Raptores* that breeds with us, and disappears during the winter months. It is by no means a common bird.

The *Spotted Flycatcher* is rather common, building in the neighbourhood of houses, and also on scaurs or cliffs by the banks of the Jed. It is a shy and unobtrusive bird.

The *Song Thrush* and *Missel Thrush* both leave their summer quarters, in this district, for a time in the depth of winter, but return with the first mild weather in spring.

Of the *Sylviadæ* a considerable number may be reckoned as denizens of Roxburghshire during the summer.

The *Redstart* is rather a local and sparingly dispersed species. I have observed it pretty frequently by the Jed, generally in the neighbourhood of scaurs.

The *Whinchat* is often met with on our moors and uplands.

The *Stonechat* is very uncommon, and I have only once seen this bird.

The *Wheatear* is rather rare, occurring only on high grounds, where there is abundance of stone-walls.

The *Sedge Warbler* is abundant and widely dispersed.

Note.—The reed warbler has not occurred to me.

The *Blackcap* is rather a local species, but by no means uncommon.

The *Garden Warbler*, though also local, is of frequent occurrence. The song of this bird is delightful, and in my opinion surpasses that of the blackcap, which is of a wilder character.

The *Common Whitethroat* is abundant.

The *Wood Warbler* is to be met with in most of the old woods, especially in those situated on a declivity. The wooded banks of the Jed, consisting chiefly of oaks, are a favourite haunt of this bird.

The *Willow Warbler* is common everywhere, and the air rings with its "silvery bells" from May till July.

Note.—The chiff-chaff does not occur in Roxburghshire.

The *Pied* and *Gray Wagtails* are common and plentiful. The great body of these birds leave us in winter, but stragglers are occasionally seen during that season.

The *Tree Pipit* is common, and its joyous notes may be heard in favourable localities almost everywhere.

The *Meadow Pipit* is common on uplands and moors. It leaves us in autumn.

The *Sky Lark* also leaves our fields and pastures at the approach of winter, and is not seen again till the first mild weather in spring.

The *Black-headed Bunting* breeds in our tall hedgerows and thickets in the neighbourhood of water, but leaves us in winter, with the exception of an occasional straggler among a flock of chaffinches and yellowhammers.

The *Cuckoo* is rather local, occurring principally in the vicinity of moors and uplands.

Of the Hirundinidæ, the *Swallow* and *Sand Martin* are common, but the *House Martin* and *Swift* are more local and less plentiful. The swift haunts some of the red-sandstone scaurs on the Jed.

The *Nightjar* is rare. I have only seen two examples of this bird.

The *Golden Plover* resorts to our moors and uplands for the purpose of breeding, and leaves us in the end of autumn.

The *Curlew* does the same, but leaves us much earlier, generally in the beginning or middle of August.

The *Peewit* breeds in our fields and uplands, and afterwards frequents low-lying pastures in flocks till the beginning of winter, when it leaves us altogether.

The *Ringed Plover* is rare, but sometimes breeds by our larger rivers. The dotterel is not found in this district.

The *Common Sandpiper* is abundant by our river-sides. It departs early in August.

The *Landrail* is common, and its "craik, craik," is to be heard in almost every clover-field, especially in the vicinity of a river.

The *Black-headed Gull* breeds in various localities throughout the county, but the great resort of this species, the Moss, at Ancrum, in

this neighbourhood, no longer affords it a resting place, having been drained and converted into arable land, to the grief of the lover of Natural History.

III. *Winter Visitors*, 9.

Merlin
Fieldfare
Redwing
Mountain Finch
Woodcock

Jack Snipe
Teal
Golden-Eye
Goosander

The *Merlin* sometimes visits this district in autumn and winter, but is not often seen. I have shot two or three examples in autumn at various times.

The *Fieldfare* is common in the low-lying parts of the county, but only resorts to the upper parts in hard weather.

The *Redwing* is rarer, though flocks are occasionally seen.

The *Mountain Finch* may be considered as a regular winter visitor, as some examples of the species are to be seen intermingled with flocks of chaffinches generally every winter.

The *Woodcock* is sufficiently common, though not abundant.

The *Jack Snipe* is rare.

The *Teal*, the *Golden-eye* and the *Goosander* visit our rivers and streams in severe weather, but cannot be called common.

IV. *Occasional Visitors*, 14.

Osprey
Bohemian Waxwing
Ray's Wagtail
Snow Bunting
Goldfinch
Siskin
Lesser Redpole

Common Crossbill
White-winged Crossbill
Quail
Red-necked Grebe
Little Grebe
Common Gull
Black-backed Gull

The *Osprey* is very rare. The only instance I know of its occurrence is a pair of them being shot, by the Tweed, the end of last month (May, 1850).

The *Bohemian Waxwing* occurred several times in this county during the past winter.

Ray's Wagtail. A straggler or two of this species is sometimes seen in spring, but is very rare; and I know of no instance of the bird breeding here.

The *Snow Bunting* is very rare. The only example I ever saw was one that I shot in a stubble-field, in November, 1841.

The *Goldfinch* appears at rare and uncertain intervals.

The *Siskin* and the *Lesser Redpole* are more common, and are to be seen almost every year, either in winter or early spring. The former bird appears to feed chiefly on the seeds of the alder.

The *Common Crossbill* occurs at irregular intervals, feeding principally on the seeds of the larch.

The *White-winged Crossbill* is very rare. I have only known one instance of its occurrence within the last ten or twelve years.

The *Common Quail* has been shot once or twice in this district.

The *Red-necked Grebe*. A single bird of this species was captured, in an exhausted state, on the thrashing pond at this place, in January last.

The *Little Grebe* appears at irregular intervals on our rivers, generally in winter. I do not think it breeds in this county.

The *Common Gull* is often seen in stormy weather, and sometimes in spring frequents particular localities for a considerable time. I observed this during the past spring, when several of these birds were constantly to be seen hovering over a particular field of young corn for upwards of a fortnight.

One of the *Black-backed Gulls*, probably the Lesser (*Larus fuscus*), is occasionally seen by our larger rivers, as the Teviot, but is very wild and wary. I have generally remarked it in autumn.

ARCHIBALD JERDON.

Mossburnford, near Jedburgh,
June 11, 1850.

Unnecessary destruction of rare Birds.—May I entreat you to interpose the authority of your editorial pen, to prevent the pursuit of Ornithology degenerating into an exterminating warfare against our rarer denizens, and all our occasional visitors of the feathered tribe; and the ‘Zoologist,’ despite its name, becoming little more than an obituary of the slain. That men engaged in the “emollient” study of Natural History should do such truculent deeds as are not unfrequently recorded in your pages, is sufficiently surprising: that they should publish their doings surpasses comprehension! I have been led to make this appeal to you by the perusal, in your last number, of Mr. C. A. Delmar’s feats in exterminating golden orioles, at Elmstone. It appears that a pair, that rested there last year, fell to the gun of this active exterminator, and were transferred to his brother’s museum. Not content with having thus amply furnished their museum, another bird that made its appearance in the same locality this season, was subjected to the like fate: and still unsatiated, “we looked the place well,”

writes Mr. C. A. Delmar, "and found only this bird, and my brother has been to the spot every day since, but has not seen or heard another." A still more grievous case of extermination is recorded in your last year's volume (Zool. 2528). *Four pairs* of night herons had, it seems, established themselves on the banks of the river Erme, in Devonshire, in the breeding season, when, on the 23rd of May, as ill-luck would have it, Mr. C. J. C. Bulteel wended his way through their haunt, "flushed four of them, and in less than twenty-four hours succeeded in securing the whole." About a week afterwards he "renewed his search, which resulted in his killing two more;" and on the 22nd of June, he and a friend beat the river for "what he considered the last of the flock," and their efforts did not prove unavailing, as "each bagged a bird, making up the complement of *eight adult birds, four males and four females*." Could anything be penned more distressing to a true ornithologist than these details? A probable chance of these beautiful birds being permanently established and naturalized in this country, seems to have been cruelly nipped in the bud by this wanton and wholesale slaughter. If these birds had been allowed to rear a progeny, that progeny would in successive generations have been pretty nigh certain to return to their own cradles to continue their succession: with how much greater satisfaction to themselves, and pleasure to your readers, might these gentlemen then have recorded, that under their fostering care such interesting additions had been made to our permanent Fauna. A desire to extend our knowledge of birds, about which so little remains to be learnt as the golden oriole and night heron, cannot be pleaded in extenuation of this persevering extermination of them like noxious vermin; and I trust your pen will not be wanting to arrest the curtailment of our list of British birds by such inconsiderate destruction.—*J. P. Willmot; Manchester, July 13, 1850.*

Occurrence of the Redwing (Turdus iliacus) near Norwich, in June.—On the 3rd of June last, a specimen of the redwing was shot in an osier-ground at Heigham, near Norwich. I never before knew an instance of the occurrence of this thrush in Norfolk, at this season.—*J. H. Gurney; Easton, Norfolk, July 13, 1850.*

White Breasted Partridges.—I quote the following from the 'Cambrian Newspaper,' which is worthy of a corner in the 'Zoologist.' It runs thus, "Dr. Phillips, of Hampstead, while shooting near Brecon, sprung a small covey of birds of which he killed two brace; their breasts were snowy white, and round their head was a ring of the same colour."—*J. Mcintosh; Milton Abbey.*

Occurrence of the Glossy Ibis (Ibis falcinellus) near Lowestoft.—On the 27th of May last, a very beautiful adult specimen of the glossy ibis was shot, on Blundeston Marsh, near Lowestoft. The bird was a female, but the ova were not larger than small peas.—*J. H. Gurney; Easton, Norfolk, July 13, 1850.*

Habits of the Heron (Ardea cinerea).—Has this remarkable fact in the economy of the Heron ever been noticed, that when they are in the neighbourhood of sands that are flooded by the tide, they always make their fishing excursions at low water, when the holes are sufficiently shallow for them to fish in? I have often noticed them, and although the tide daily varies, they are always exact to the time when the water becomes fordable.—*Edward Peacock, Jun.; Messingham, Kirton Lindsay.*

Tufted Duck (Anas fuligula) breeding in Malkham Water.—I observe that Mr. Yarrell, in the third volume of his 'British Birds' (page 352, second edition), under the head "Tufted Duck," says, "I do not remember to have met with any record of their breeding in a wild state in Britain." I will, therefore, avail myself of your columns to inform Mr. Yarrell and ornithologists in general, that last year (1849)

either in the first or second week in August, I saw, by the aid of a telescope, from the windows of Malham-Water House, a brood of eight or nine, of what I have no doubt were young tufted ducks, swimming on the lake of Malham Water, which is of considerable extent, in a very wild part of the West Riding of Yorkshire, at an elevation of nearly 1300 feet above the level of the sea. The telescope was of sufficient power, not only to exhibit the contrast of white and black in the plumage of the old male bird, but also to show with perfect distinctness the tuft upon its head, and there was only one of the number that I observed to be furnished with that appendage. I drew the attention of other persons in the room with me to the circumstance of my being able to distinguish the tuft, though not at the time aware that the fact of this duck breeding wild in this country was of such rare occurrence. There is on part of the western side of Malham Water an extensive moss, or peat bog, to which the birds in question made their way, after remaining for some time under my observation, and on this tract of waste ground, not only the common wild duck, but also the teal, breeds constantly every year.—*Robert Bryan Cooke; Wheldrake Rectory, York, July 12, 1850.*

Masked Gull (*Larus capistratus*) in the *Mediterranean*.—I have just read in your Journal (Zool. 2776) Mr. Bury's remarks on some observations on Gulls at Gibraltar, which I sent to you some months since (See Zool. 2655). I cannot help thinking, that, whether he intended to be so or not, he has been somewhat *captious*. He has put a construction on my words, which they were never intended to bear. Mr. Bury published in the 'Zoologist' (Zool. 2457) the result of his observations at Malaga: I never for a moment doubted his correctness, but in common with, I dare say, many others, felt obliged to that gentleman for having directed attention to the occurrence of the masked gull in the Mediterranean. Having spent a short time at Gibraltar, I likewise sent you what I believed to be the result of my observations, not for the purpose of opposing Mr. Bury's views, but merely as some additional information connected with the subject. I never had the smallest intention of attempting to disprove the occurrence of the *Larus capistratus* in the Mediterranean, but merely stated that at a certain time I had seen the *L. ridibundus* at Gibraltar: I did not even assert that the former species did not occur there, but said, that I had not observed it. And on the strength of these remarks, Mr. Bury now gives me credit for want of information, and for advancing absurd ideas, in a manner which is, I think, scarcely fair. If Mr. Bury did not suppose that I had any intention of calling in question either his veracity, or his accuracy of observation, why did he ever mention these subjects? If he intended to doubt my accuracy of observation, which I presume he does, could he not have done so in more gentle terms; and at the same time avoided pointing out to me, as he has done, what I ought to have known, or obscurely hinting at not over creditable motives? I still feel convinced that the birds which I saw at Gibraltar were black-headed gulls; they were frequently within four or five yards of me, and on one occasion I had an opportunity of examining one which alighted on the surface close to a boat in which I was, and this one was within two yards of me. My acquaintance with this bird is not the result of one or two casual visits to the shores of Britain, or an occasional summer trip to the sea-coast, but from having spent a considerable portion of my life in a part of Britain, which equalled by few, is excelled by none, in the advantages it offers for ornithological pursuits, and especially the study of marine birds. I trust that on this occasion I have made myself perfectly intelligible, and that my present remarks cannot be construed in an *anti-masked gull sense*, or be looked on as

another attempt to disprove an extremely probable theory, more especially, as I believe, that if my powers of vision have not again been too acute, I have during the past spring seen several of these birds in another part of the Mediterranean.—*W. Balfour Baikie ; Khania, Candia, June 3, 1850.*

Way in which Toads shed their Skins.—In a late number of the 'Gardener's Chronicle,' is an account by Mr. Turner of the manner in which he saw a toad shed its skin. This statement does not materially differ from that given in Bell's 'British Reptiles,' except in one point. Bell describes the cuticle as pushed by the two hands into the mouth in a little ball, and swallowed at a single gulp. I have this morning witnessed an exhibition of this remarkable economy in the disposal of his old clothes, by one of the large Jersey toads, of which I received two living specimens a few days ago. Observing the back parts of the animal to be bright and moist, and seeing it raise its hand, as if to scratch its back, I at once perceived what was going on, and summoned my family to witness the process. The toad continued, at intervals of a few seconds, to open its mouth wide, and at the same time to assist the removal of the cuticle, by stretching its arm and contorting its body, much in the way we see our amateur boatmen of the Cam divest themselves of those seamless knitted jackets, which they pass over their heads. A great part of the cuticle had already disappeared from the hinder quarters, and I observed a continuous and almost imperceptibly slow progression of what remained round one of the corners of the mouth and down the throat. In this way the cuticle became removed in proportion as it was detached. The whole of the left side was cleared first, with the exception of a small tattered fragment that adhered round the fingers, and which I did not observe to be removed by the mouth. The right arm was then more successfully liberated, the cuticle slowly disappearing round the right angle of the mouth, much as we might fancy a long strip of ribbon macaroni would descend if swallowed without a rupture. I did not notice any direct pushing of the cuticle by the hands into the mouth; nor yet any pellet formed of it, to be bolted at a single gulp. Whether there has been any mistake in the description of the process adopted by our English toads I will not venture to assert, but certainly my own pet swallowed his Jersey jacket in a very gradual and deliberate manner.—*Prof. Henslow, in Gardener's Chronicle, June 15, 1850.*

Occurrence of the Sun-fish off Weymouth and Torquay.—I observe (Zool. 2856) that a sun-fish was captured off Poole, June 13: on the same day one was taken off Weymouth. I was at Torquay a day or two afterwards, where they were also exhibiting one caught at Torbay a day or two previously. Here then are three of these monsters caught at about the same time, and probably many more of which no record has been made.—*R. Damon ; Weymouth, July 6, 1850.*

Note on the Kittiwick Crab.—The voracity of the common kittiwick crab is well known, but I saw an instance of it yesterday which was new to me. In fishing for a few hours in the sea, off Lowestoft, with a small-meshed net, a great number of the fry of the herring were from time to time drawn on the beach when the net was landed, together with several kittiwicks, and in four separate instances I observed a kittiwick, as soon as the net was drawn on shore, take up a young herring in its pincer-shaped claws and march off with it towards the sea, with the utmost unconcern. The kittiwicks were about two inches in diameter, and the herrings which they selected were of about that length also.—*J. H. Gurney; Easton, Norfolk, July 13, 1850.*

Mode of killing Lepidoptera without changing the Colour.—Having killed some green moths with sulphur, which of course turned them of an ochreous tint, and being from home, I was puzzled to find some easy means at hand to kill other specimens, and at the same time preserve their colour. I then hit upon a plan which is so simple, that it may be applied by any one whilst travelling, or at any time when the usual apparatus is not at hand. The only thing required is a tin box, which fits pretty well: mine is round, and one inch and a half in diameter, and exactly holds a nest of four pill-boxes, preventing their being crushed in the pocket. Having shut up the moth in a pill-box, it is to be put into the tin box, placing the lid close on: then hold it for ten seconds over the flame of a candle, and do not open the box for the remainder of the minute, that the heat may pass through the tin and vacuum into the pill-box, and the moth will be found dead, perfect, and fit to set. I may add that my trials were made with *Phalænæ*, and the vacuum was very trifling, the pill-box being nearly as large as the tin one. Bruised laurel-leaves or ammonia may be preferable, but they are not always at hand when travelling, or away from home. Moreover, I find the laurel not always effective when fresh, unless the leaves are well bruised, and insects remain rigid for a considerable space of time when thus destroyed, which is very inconvenient when one is moving about, as they cannot be set and arranged at once.—*J. Curtis; Barnsbury Park, July, 1850.*

Capture of rare Lepidoptera near Manchester.—Believing that the following insects, captured by me in this neighbourhood, are not of very common occurrence, they may perhaps be worthy of insertion in the 'Zoologist.' On the evening of the 23rd of June, I took the *Agrotis annexa*, on the *Rhododendrons*, also the *Abraxas Ulmata*; and between then and the 28th of June, I took fifteen specimens of *Plusia Iota*, one of *Chærocampa Porcellus*, and three of *C. Elpenor*: all these were caught on the *Rhododendrons*, in the evening. On the 25th of June, I took the *Xylina rhizolitha* on Chat Moss. Last Saturday afternoon (13th of July) being a very sultry day, I captured one specimen of the *Phorodesma smaragdaria*; it was flying very swiftly; I took it in a little wood on the borders of Chat Moss. I may also here mention, that in 1848 we took two specimens of this somewhat rare moth, at Chigwell, Essex. The *Abraxas pantaria* was taken by me, July, 1849, at night, on the borders of Lake Windermere.—*E. Charles Buxton; Kenyon House, near Manchester, July 15, 1850.*

Capture of Lepidoptera at Almondsbury, Gloucestershire.—

Colias Edusa. Beginning of October, on the flowers of a small species of dandelion, on high pastures; scarce.

Vanessa C-album. July and October.

- Dilephila lineata* (Fab.). End of May, on a cottage window.
- Lithosia helvola*. August, on fir copse.
- Phragmatobia mendica*. April and May, in damp hedges.
- Platypteryx hamula*. May and June, off oaks.
- Acronycta Alni*. May, hatched from pupa, off hawthorn, in September.
- Crymodes Templi*. October, on window.
- Teniscampa opima*. Beginning of April, off sallow blossoms, with lantern.
- Xanthia citrigo*. September, on ivy blossoms.
- Dianthæcia carpophaga*. End of May, in the evening, near woods.
- Aplecta nitens*. Beginning of July, flying about a plum-tree, in the evening.
- Xylina petrificata* (Fab.). September and October, on ivy blossoms.
- Heliothis marginata*. August, in the evening, flying in a lane.
- Spilodes sticticalis*. August, flying along a dry bank of a wood.
- Eubolia cervinaria*. September, on hollyhock.
- Lobophora polycommaria*. March 20th, on sallow blossoms, and in flight, near a gorse cover, with lantern.
- Eupithecia innotaria*. Beginning of August, low dry hedge of oak copse.
- Eupithecia irriguaria*. April and August, ivy on wall and dry hedge of copse.
- Acidalia Blomeraria*. July, in the evening, flying, on wood-sides.
- Tortrix spectrana*. Beginning of July, flying at sunset, over *Carex*, in marsh.
- Teras caudana* (Fab.), var. *ochracea* (Step.). Beginning of August, Hortham Wood.
- Teras effractana* (Fr.). August and September, Hortham Wood, by beating.
- Penthina margianana*. May, in long grass in damp pasture, at sunset.
- Penthina carbonana* (Doub.). July, Hortham Wood, bushes, by beating.
- Euchromia purpurana*. Middle of July, at sunset, in long grass, by the side of a corn-field, near Bagwood Brook, and among aftermath clover, same district.
- Orthotania antiquana*. May and July, grassy bushes and stony places, at sunset.
- Orthotenia Trifoliana*. August, Hortham Wood, bushes, by beating.
- Sciaphila nubilana*. July, off a maple-tree, by beating.
- Sciaphila perterana*. Middle of June, beaten off an ash-tree, in wild bushy pastures.
- Clepis rusticana*. Beginning of June, off maple-tree.
- Graypholita Paykulliana* (Fab.), and its var. *costana* (Dup.). August, off beeches, in plantation.
- Graypholita cinerana* (Haw.). July and August, day, couchant on aspen-stems, in Hortham Wood.
- Ephippiphora nigricostana*. May and June, 2 to 4 p. m., flying along low hawthorn hedges and banks.
- Heurimene fimbriana*. March, off oak-trees, by beating.
- Retinia Pinivorana*. May, off pine-trees, in plantation.
- Carpocapsa splendana*. July, beaten from hedges of Hortham Wood.
- Caloptria Westwoodiana*. Middle of July, flying at sunset on grassy banks of Bagwood Brook, and among aftermath clover, near Stoke Bridge; numerous.
- Eupæcilia notulana*. Beginning of July, flying at sunset by the side of ditches, in marshes and in old fish-ponds, over *Carex paludosa*; numerous.

Xanthosetia inopiana. July, evening, flying in grassy, dry places and quarries.

Crambus dumetellus. Midsummer, beaten from furze on Durdham Down: not rare there, but it is exceedingly local.

Hypochalica ahenella. Day, skipping among mowing grass in *one field only* in my whole district, though numerous *there*. I have one fine female about 13 lines in expansion, of an entire deep red.

Tinea marginepunctella. Beginning of July, evening, flying along hedge-rows in damp pastures.

Nemotois Schiffermüllerellus. July, 2 p. m., over scabious, very local.

Plutella Cultrella. March, May, and June, evening, on willows, and flying by wood-sides.

Depressaria atomella. September, feeding in the evening on golden-rod blossoms.

Depressaria Angelicella. July, bred from larvæ found in *Heracleum*, binding together the top-leaves of the young plant.

Roeslerstammia granitella. Beginning of July, Hortham Wood, by beating.

Argyresthia retinella. June and July, off birches, in plantations; freely.

Coriscium substriga (Haw.). July, beaten off bushes near aspens, in Hortham Wood.

Coriscium Cuculipennellum. In company with the preceding; both rare.

Elachista testaceella. October, off furze-bushes, in rocky lanes; rare.

Elachista collitella. End of June, flying at sunset, in grassy quarries.

Trifurcula squamatella and *immundella*. July, flying at sunset in rough bushy pasture.

Gelechia luteolentella. See 'Zoologist' for April.

Pterophorus lithodactylus (Fr.). End of July, flying at sunset from damp grassy ditches near woods, and from thistles in a paddock.

Several new species of *Gelechia* and *Coleophora* from long grass of ditches on the borders of Hortham, Woodland, and Rudge Woods, including *Inulæ*, *bifractella*, *badiipennella*, *Lusciniapennella*, *orbitella*, *lacunicolella*, &c. — *J. Allen Hill*; *Almondsbury House*, July, 1850.

Capture of rare Lepidoptera in Gloucestershire.—On the 12th of May last, I discovered a very fine specimen of the rare *Geometra*, *Eupithecia consignaria*, under the eaves of my house. I also captured last evening, in a wood, not far from my house, a very perfect specimen of *Xylophasia sublustris*. Several *Geometræ*, which are, I believe, considered rare, I have captured in plenty in the woods around, *e. g.*, *Larentia cervinaria*, *Bapta taminaria*, *Bapta temeraria*, *Thera variaria*, &c.—*Joseph Green*; *Vicarage, Lower Guiting, Gloucestershire*.

Occurrence of Zeuzera Arundinis at Whittlesea Mere.—This insect has occurred in great profusion in the neighbourhood of Whittlesea Mere this season. The larvæ feed within the stems of the common reed, and the pupa, which is remarkably elongated, is exceedingly active, moving up and down the stems of the reeds with great rapidity. The perfect insect emerges from the pupa state about 10 o'clock at night.—*Henry Doubleday*; *Epping*, July 20, 1850.

[A similar communication has been received from Mr. Bouchard, who visited the locality and captured a considerable number of specimens, many of them *in copulâ*. The female is remarkable from her extremely elongated body, which gives her somewhat the habit of an *Agriion*.—*Edward Newman*.]

Capture of Diphthera Orion near Colchester.—I captured a very fine specimen of this rare insect on the 21st of June, by beating it from an oak-tree in a wood at Dedham, near Colchester.—*W. M. Frost ; Dedham, near Colchester, June 27, 1850.*

[The writer of this interesting note seemed to expect its appearance in the July number: it was not received until that number was published.—*E. Newman.*]

Capture of Odontia dentalis at Folkstone.—Yesterday I captured here twenty specimens of this moth, brushing them out of some plants of *Echium vulgare* growing near the sea. When roused they flew a short distance, and settled on the stems of grasses, &c., and were easily captured. They were very local: I found them only in one spot of a few yards' extent.—*J. W. Douglas ; Folkstone, July 19, 1850.*

Occurrence of Chilo mucronellus in Scotland.—I took a single specimen of this insect by the side of a loch near Glasgow, on the 28th of July, last year. It arose from out of some reeds, and in its flight much resembled *Crambus petrificellus*, for which insect I boxed it. It is a little worn; but whether this may be considered as a token that its season was nearly over, I cannot say. Parties, however, might look for it, in similar localities, throughout next month.—*John Scott ; London Works, Renfrew, July 8, 1850.*

Occurrence of Asemum striatum at Renfrew.—Throughout last month this insect has been frequently met with around here, I have myself taken ten specimens, and am aware of the capture of several others. I find it more commonly on palings than on old posts, and always in the after part of the day, from four to eight o'clock. It is easily laid hold of, as it does not drop like most insects. It seems to prefer sitting with its head downwards, which it keeps close to the paling, whilst its other parts stand out at a considerable angle, owing to its raising itself on its hinder legs.—*Id.*

Ferocity of a female Cicindela.—On the 27th of June, I caught a fine pair of *Cicindela sylvatica* in copula, and put them together in a small box, with some heath. About two hours after, the female had mutilated the male by forcing one fore-leg out of the socket, severing a middle leg at the trochanter, and amputating the hinder one at the base of the tibia. This was all on one side: she then began, I suspect, on the other side, and took off the tarsus of the fore-leg, her object, it may be presumed, being to deprive her companion of the organs of locomotion, that she might make a quiet meal of his body. The same ferocious disposition prevails in some spiders, and probably to a considerable extent amongst the carnivorous Coleoptera. In the order Diptera, the males seem often to be banished from female society, and even amongst the hive-bees the drones are sent to the right-about, when their services are no longer required. This extraordinary (and to man's comprehension unnatural) economy would admit of a deal of philosophy, but I shall only remark, that it is one of the mysteries of nature, that the male *Cicindela*, which is scarcely smaller than the female, and whose jaws are equally sharp and powerful, should quietly submit to be pulled to pieces by his partner, without the slightest injury in the strife, to what we term the softer sex. I send you the male with his disjointed limbs, that you may witness how cruelly he has been used.—*E. S. ; communicated by John Curtis, Esq.*

Pezomachus hatched from the Cocoons of Microgaster.—The first week in June I found a woolly mass of cocoons upon a twig of heath, and as usual it produced a species of *Microgaster*, amounting in a few days to one male and seventeen females; but this was not all, for in about a fortnight six female *Pezomachi* hatched from the same mass. It what way are these species connected? Did they both lay their eggs in the caterpillar? or is the *Pezomachus* a parasite upon the *Microgaster*? If this

should meet the eye of Mr. Haliday, I hope he will favour us with his opinion.—*E. S.*; communicated by John Curtis, Esq.

Starfishes at Eastbourne.—This evening (July 9, 1850), at low water, the sands were strewn with multitudes of starfishes. They lay in clusters in the pools and amongst the low rocks; as the tide advanced, it was marked by a line of these beautifully-coloured Radiata, apparently waiting for a renewal of animation from the returning wave. They were of a large size, and I have no doubt the whole number in the space of half a quarter of a mile amounted to thousands.—*Charles Tylor; South St., Eastbourne.*

Death of the Rev. William Kirby.

WILLIAM KIRBY is no more. For fifty years that name has occupied the post of honour in the minds of British entomologists. Coupled with that of Spence, it was transmitted to us by a generation of entomologists now rapidly disappearing, and in the same company we shall transmit it to our children. The works of Kirby are not those of a class or of a nation: they are for all classes and all countries: their value consists in the skilful arrangement, good taste, religious fervour, and graceful persuasion to study that pervades them. The value of such teachings is shown by their success: no master ever left so large a number of devoted pupils; and this devotion is a tribute to the heart as much as to the head of the writer; it is an impulsive homage to that spirit of gentleness and truth which pervades all he has published.

Were it desirable to pass a critic's judgment on Mr. Kirby's writings; to contrast some of his opinions and conclusions with those subsequently attained by others from access to a more copious store of facts and observations, we might perhaps be enabled to show that he was occasionally in error: but this is no time for criticism; and were it so, were the contrast rigidly carried out, the amount of error would be found small indeed, when compared with the good achieved, when compared with the benefits which have accrued, not only directly from Mr. Kirby's individual labours, but indirectly through the labours

of those who, partaking at his hands of the truly philosophical taste he was so willing and so able to impart, have in their turn become, first pupils, and then masters, in the science of which he was so distinguished an ornament. Thus although on the very subjects which Mr. Kirby selected for illustration, such for instance as the specific differences of the British bees, he has been detected in some inaccuracies by observers equally pains-taking with himself; still it is evident, from their own spontaneous admissions, that the greater proficiency of these later authorities is to be traced to his teachings, and the taste matured in them is found to have been inspired by the admirable manner in which Mr. Kirby himself introduced the subject to their notice.

It is interesting to note the first dawnings of that ardent love for Natural History which was destined in after life to distinguish our departed friend. In his very infancy we find him, under the guidance of a beloved mother, learning the names and studying the beauties of shells, of which she fortunately possessed a collection amply sufficient for the purpose. We next hear of his being engrossed with botany, a study he pursued with untiring energy until he made himself perfectly familiar with every plant that grew around his home. Lastly, he has himself recorded that the final bias towards the study in which he reaped all his laurels, was given by accidentally watching a yellow lady-bird crawling up a pane of glass: thus adding one more to the numerous instances already before us, of the apparently insignificant causes which have turned the thoughts of great men to subjects of which the subsequent investigation has rendered them so illustrious.

Mr. Kirby was born at or near Ipswich, in September, 1759; he studied at Caius College, Cambridge; and took up his residence at the Rectory of Barham in 1782, being then in the 23rd year of his age: he resided at Barham sixty-eight years, and died there full of years and full of honours on the 4th of July, 1850, enjoying not only the admiration of the scientific world, but the love and veneration of all who knew him, for although ranking so high as a philosopher, he was throughout his long life equally beloved and venerated as a man: he was an exemplary and active clergyman, endeared to all classes of his

parishioners; a warm and constant friend; and one of the most single-minded, retiring, modest and kind-hearted of men.

As an active contributor to science Mr. Kirby has for some years been lost to us; his death leaves no gap in the scientific world: he lives and will live in his works; through these his spirit will continue to instruct us, and not ourselves only, but our children and our children's children. The most important of his publications are enumerated below.

- I. 'Monographia Apum Angliæ; or an attempt to divide into their natural genera and families such species of the Linnæan genus *Apis* as have been discovered in England.' 2 vols. 8vo., 642 pp., 17 plates.

(It may briefly be observed that this is the earliest attempt at a complete digest of the genus, although preceding that by Latreille by a short interval only. The plates were etched by Mr. Kirby himself, who had learned that art for this especial purpose.)

- II. 'An Introduction to Entomology, or Elements of the Natural History of Insects.' 4 vols. 8vo., 2451 pp., 30 plates. (This well-known work was the joint production of Mr. Kirby and Mr. Spence.)

- III. 'On the History, Habits, and Instincts of Animals.' Being the Seventh Bridgwater Treatise. 2 vols. 8vo., 948 pp., 17 plates.

- IV. 'Fauna Boreali-Americana. By Dr. John Richardson, &c. Part IV. The Insects.' 1 vol. 4to., 325 pp., 8 plates.

- V. 'Descriptions of Three New Species of *Hirudo*.' Published in the *Transactions of the Linnean Society of London*, vol. ii. p. 316.

- VI. 'A History of Three Species of *Cassida*.' *Id.* iii. p. 7.

- VII. 'Ammophila, a new genus of Insects of the class Hymenoptera, including the *Sphex sabulosa* of Linnæus.' *Id.* iv. p. 195.

- VIII. 'History of *Tipula Tritici* and *Ichneumon Tipulæ*, with some Observations upon other Insects that attend the Wheat.' *Id.* iv. p. 230.

- IX. 'A Continuation of the History of *Tipula Tritici*.' *Id.* v. p. 96.

- X. 'Observations upon certain Fungi which are Parasites of the Wheat.' *Id.* v. p. 112.
- XI. 'Some Observations upon Insects that prey upon Timber, with a short History of the *Cerambyx violaceus* of Linnæus.' *Id.* v. p. 246.
- XII. 'The genus *Apion* of Herbst's *Natursystem* considered, its characters laid down, and many of the species described.' *Id.* ix. p. 1.
- XIII. 'Descriptions of Seven New Species of *Apion*.' *Id.* x. p. 347.
- XIV. 'Strepsiptera, a new order of Insects proposed, and the characters of the order, with those of its genera, laid down.' *Id.* xi. p. 86.
- XV. 'Addendum to Strepsiptera, p. 86.' *Id.* xi. p. 233.
- XVI. 'A Century of Insects, including several New Genera described from his cabinet.' *Id.* xiii. p. 375.
- XVII. 'A description of several New Species of Insects, collected in New Holland, by Robert Brown, Esq.' *Id.* xii. p. 454.
- XVIII. 'The Characters of *Otiocerus* and *Anotia*, two new genera of Hemipterous Insects belonging to the family of *Cicadadiadæ*; with a description of several species.' *Id.* xiii. p. 12.
- XIX. 'A description of some Insects which appear to exemplify Mr. William S. Mac Leay's doctrine of affinity and analogy.' *Id.* xiv. 93.
- XX. 'Some account of a new species of *Eulophus*, *Geoffroy*.' *Id.* xiv. p. 111.
- XXI. 'A description of such Genera and Species of Insects alluded to in the 'Introduction to Entomology' of Messrs. Kirby and Spence, as appear not to have been before sufficiently noticed or described.' *Id.* xiv. p. 563.

In the 'Zoological Journal,' &c. several other papers of interest will be found.

EDWARD NEWMAN.

Proceedings of the Zoological Society.

Monthly General Meeting, July 4.—Sir P. DE MALPAS GREY EGERTON, Bt., M.P., in the chair.

Miss Bertrand, A. N. Armani, Esq., W. P. Wood, Esq., M.P., J. Thrupp, Esq., J. Taylor, Esq., Richard Blakemore, Esq., M.P., and J. P. Stocker, Esq., were elected as Fellows. The Hon. A. Russell, The Hon. G. Campbell, Capt. R. N., Sir J. Ramsden, Bt., The Earl of Abergavenny, Capt. C. Wynne Payne, H. Padwick, Esq., and J. J. Cumings, Esq., were proposed as candidates for the Fellowship. Arthur Walker, Esq., of Pietre Maritzberg, was proposed as a Corresponding Member.

The Report of the Council stated that the Menagerie now included upwards of 1500 animals: that the receipts during the month of June were greater than those of any similar period since the foundation of the Society; that the number of visitors during the first six months of the present year had been 156,432: and that this number exceeded the corresponding period of 1849, by 82,449.

Proceedings of the Entomological Society.

July 1, 1850.—WILLIAM SPENCE, Esq., V. P., in the chair.

The following donations were announced, and thanks ordered to be given to the donors: 'Annals of Lyceum of Nat. Hist. New York,' Sept. 1848; by the Lyceum. 'Entomologische Zeitung,' for May; by the Entomological Society of Stettin. 'Statuten und Namen der Mitglieder des Munchener Vereins für Naturkunde, and Isis, 1850, No. 1;' by the Munich Natural History Society. 'On the Pselaphidæ of the United States' and a 'Synopsis of the Cleridæ of the United States;' by the author, Dr. John L. Le Conte.

Four impaled Bombi (exhibited at the preceding meeting); by Mr. Gould. Specimens of Apion Sedi and Pogonus Burrellii; by Mr. S. Stevens. A collection of Lepidoptera; by Mr. Douglas.

John Lubbock, Esq., of High Elms, near Farnborough, and the Rev. Hamlet Clark, of Northampton, were elected members of, and John Walker, Esq., of Chesterfield, was elected a subscriber to the Society.

The President announced that the prize offered for the best monograph of a genus of Tortrices, had been awarded and sent to Mr. Logan for a monograph of the genus *Penthina*.

The President also announced that the Council had appointed Mr. E. W. Janson, Curator to the Society.

Mr. S. Stevens exhibited living specimens of *Gracilia minuta*, with the willow basket-lid in which they had bred; also *Sericoris littorana* reared from thrift (*Statice armeria*) growing below Gravesend, and *Elachista rufocinerea* and *E. cerusella* taken *in copula*. He also exhibited a *Psecadia funerella*, taken early in June, near Kirkby Stephen, Westmoreland, by Mr. Hewitson.

Mr. Bond exhibited several *Psecadia funerella* from Whittlesea Mere; also *Chilo mucronellus*, *Nascia ciliaris*, *Eupithecia sparsata*, and *Zeuzera arundinis*, from the same locality.

Mr. J. F. Stephens exhibited pupa-cases of *Zeuzera arundinis* protruding from reeds in which the larvæ had fed; and Mr. Bond stated that the pupæ, although pos-

sessing but small spines, moved up and down the inside of the reeds with as much rapidity as the larvæ. Mr. Westwood said that he had seen cases of a Dipterous insect, probably a Cecidomyia, sticking out of reeds just in the same manner as these Zeuzera: they would probably prove to be those of a new species, as this economy was quite new in the history of the genus.

Mr. F. Smith said that having in former years found *Baris laticollis* at the roots of *Sisymbrium officinale*, he searched for it again this season; but found, instead of those insects, some larvæ which he supposed to be those of *Leiosoma punctata*. He also stated that he had observed attached to the posterior segments of the abdomen of a common *Hydrobius* a receptacle containing eggs, one of which he had examined microscopically, and found in it a living larva.

Mr. White read part of a biographical notice of Dr. Leach; and also a letter from Mrs. Hamilton, in which the capture of a *Curculio*, probably *Acanthothorax longicornis*, in India, was recorded.

Mr. Westwood exhibited drawings of the larva and pupa-case of *Psyche nigricans*, found by Mr. Weaver in the New Forest; and stated that Mr. Weaver had taken two other species of *Psyche* new to Britain,—and in Scotland *Cetonia ænea* and *Pytho depressus*.

Mr. Westwood exhibited larvæ of *Lymexylon navale* in wood from Pembroke dock-yard, where it had proved very destructive to Italian oak which had been lying there since 1846: it had been suggested that the wood should be placed in the steam-kiln in order to effect the destruction of these larvæ, and this plan was to be tried.

Mr. Westwood read a portion of a paper entitled 'Notes on Strepsiptera,' and exhibited drawings in illustration.

Mr. Stainton read a description of *Micropteryx Aruncella*, *Scopoli*, as an addition to his monograph of the genus.

The following is an abstract of Mr. Stainton's paper. "In my monograph of the genus *Micropteryx* I have incorrectly described as *Aruncella* of *Scopoli*, a distinct, but closely allied species; the name to be retained for the insect there described (see p. 30) is *Seppella*, *Fab.* In the male *Aruncella* the fascia is more slender, straighter, and nearer the base than in *Seppella*; the entire absence of the silver spot towards the apex in *Aruncella* hardly forming so decided a character, as in many specimens of *Seppella* it is scarcely visible. Mr. Stephens has specimens from Darenth Wood, and Mr. Thomson once met with it on the grassy bank between Sydenham and Penge."—*H. T. S.*

Proceedings of the Microscopical Society of London.

June 26, 1850.—DR. ARTHUR FARRE, President, in the chair.

As it was found impossible to finish the reading of Mr. Williamson's paper "On the Foraminifera" at the meeting of June 12th, it was resolved that the same should be adjourned until this day, when an extra meeting of the Society took place. Mr. Williamson's paper "On the Foraminifera" was concluded; for an abstract of which, see Zool. 2862.

A paper by the Assistant-secretary, "On the Occurrence of Parasites in *Volvox Globator*," was read. Mr. Williams stated, that having received on the last meeting from Mr. Rosling some water containing *Volvox Globator*, upon examining some of

these animalcules the next evening, his attention was attracted to one which had another animalcule of the class Rotifera, swimming freely about within it, without either impeding the motions of the Volvox, or having its own motions interfered with in any way whatever. In addition to the usual granular masses adhering to the inner surface of the Volvox, there was a gelatinous mass in which ciliary movement was suspected : as these appearances seemed to be rather unusual, care was taken to preserve matters in *statu quo*, and the next morning not only was the first animalcule swimming about with great vigour, but the gelatinous mass had opened out with a second of the same kind, which swam about with the utmost activity. They both appeared at times to be feeding upon the green granules so plentifully scattered over the inner surface of the Volvox, whose motions were this day exceedingly sluggish. The next morning matters remained much the same, with the exception that little or no motion could be perceived in the Volvox, and the first and largest animalcule was rather sluggish. The next day the animalcules had contracted themselves into gelatinous lumps, and only once during the day was any sign of motion seen, and that in only one of them. In the evening, as they were evidently dead, an attempt was made to preserve this curious appearance, by evaporating the fluid and thus drying them ; this, however, only partially succeeded. The larger of the parasitic animalcules was about one-third of the diameter of the Volvox in length, and possibly about one-twelfth in breadth ; and by the most careful examination no opening could be detected by which they could have been introduced into the Volvox. Appearances of this kind have been figured by Ehrenberg, but as they are of rather rare occurrence, the author considered a well-recorded observation would not be without interest to the Society, particularly as by inquiry he could not find that any one else who had portions of the same water had seen anything similar, nor could he find any other specimen of Volvox infested in like manner in the remaining portion of the water in his possession.

Mr. Wenham read a short paper, being a continuation of a former paper by that gentleman, "On a Mode of Applying Oblique Reflected Light."

Mr. Shadbolt read a paper, describing a piece of apparatus for producing oblique reflected light, differing in construction from that proposed by Mr. Wenham, and in his opinion, free from some of the objections which might be made to that mode of applying oblique reflected light.—*J. W.*

Entomological Club.

ANNIVERSARY MEETING, July 3rd, 1850.

The following members and visitors were present :—Messrs. Bevington, Bowerbank, Christy, De la Rue, Gratton, Hart, Hutchinson, Keddell, Legg, Luxford, Marchant, M. Marshall, M. Marshall, Jun., Mills, Newman, Powle, S. S. Saunders, Smith, Spence, Stainton, S. Stevens, Van Voorst, Wade, Walton, Walton, Jun., and Woodward.

After a delightful day spent in the woods and fields, the party dined together at the Bull Inn, Mr. Bowerbank presiding.—*E. N.*

Notes of Captures of Tineidæ, with Remarks on the Specific Distinctions of some closely-allied Species. By H. T. STAINTON, Esq.

(Continued from page 2754).

Where no locality is mentioned, Lewisham is to be understood.

Elachista testaceella. Among hedges, April 25 and 29, sparingly and generally much wasted; two, tolerably fine, on palings, July 21 and 22; three, not fine, beat from a hawthorn hedge, August 1. The food of this species still remains a mystery.

Elachista Illigerella. Three specimens taken by Bouchard, at Monk's Wood, in June, are in the rich collection of Mr. Shepherd. Mr. Allis has two specimens which were formerly in Mr. Haworth's collection.

Elachista insecurella. Mr. Douglas met with two specimens at Stoa's Nest, August 1; I was there on the 2nd, and searched diligently for it, but could not find any.

Elachista Rhamniella. One specimen, beat from buckthorn, at Box Hill, July 9.

Elachista basipallidella. This name will not stand, as the insect is the gibbiferella of Zeller, described in the Isis in 1839.

Elachista atra. Two from hawthorn-hedges, June 25 and July 3.

Elachista decorella. One, April 29, flying at 1 p.m., near hawthorn.

Elachista Roëiella, Linn. Of this insect, of which at the time I published my Catalogue, I had seen no British specimens, Mr Allis has two, which were formerly in Mr. Haworth's collection; and there are also two specimens in the British collection, in the British Museum.

Elachista flavicaput. I took several specimens on June 9, flying along a hawthorn-hedge, at Sheffield.

Elachista festaliella. Of this I took several at Wanstead, May 3, flying among the mixed bushes, and I fancied they were most partial to the blackthorn, but Mr. Douglas, who met with the insect at Portland, in July, thinks they are attached to the bramble, and Hübner has figured the larva and pupa on a species of *Rubus*; added to which, Mr. Curtis states that he met with it among brambles, in the Isle of Portland. It would be extremely interesting to meet with the larva, as from Hübner's figure it approximates to the larvæ of the Pterophoridæ.

Elachista modestella. Rather common, May 14 to 27, apparently frequenting oaks.

Elachista fuscociliella, Sta. *Æratella* of my catalogue, but not of Zeller. Mr. Sircom has not met with this species again. (I find he has been sending away specimens of *modestella* as *æratella*).

Elachista æratella, Z., *metallella*, St., *brevicornis*, Dale in litt. Taken by Mr. Wilkinson, near Brighton, in June, also by Mr. S. Stevens, in Devonshire. The short, thick antennæ, and long-pointed posterior wings, readily distinguish this species from the preceding.

Elachista albifrontella. Common among oaks at Wickham, June 23; and at Charlton sandpit, among various bushes, June 28.

Elachista luteicomella. Common on the Dartford Heath fence, June 27.

Elachista atricomella. One, beat from a mixed hedge, May 27; four from hedges, June 20 to 25.

Elachista cinereopunctella. One at Mickleham, at the beginning of July. The first fascia is brighter and broader than in ordinary specimens.

Elachista trapeziella. The specimen described in my Catalogue, p. 25, is unique in Mr. Bedell's collection: it was taken at Wickham Wood, in June, by Mr. Andrews.

Elachista nigrella. Either this species is extremely variable, or we have three or four species mixed; at present I am unable to find any certain distinctive characters. I have taken it in numerous localities, and from May 2 to September 16.

Elachista pulchella. Very much scarcer than the preceding; I took one at Wanstead, May 3; one from juniper in my garden, May 29, and one among broom, at Airthrey, N. B., June 3.

Elachista obscurella. The autumnal specimens are smaller and paler than those which appear in the spring: can they be a distinct species?

Elachista Pfeifferella. One at Sanderstead, May 5, from sloe? one at Lewisham, May 28, from a mixed hedge.

Elachista Gleichella. Two at Wickham, June 23; one on the Dartford Heath fence, June 27; not scarce at Mickleham, July 6 to 11, on the downs.

Elachista regificella, Sircom, (Zool., 1849, App. p. xlii.) Closely allied to *magnificella*, if indeed it be truly distinct, which is much doubted by Messrs. Douglas and Weir, who should be best acquainted with that species.

Elachista apicipunctella. In extreme profusion for about twenty minutes on the evening of June 4, among rushes at Latham Moss, Stirlingshire; but unfortunately the midges were biting so incessantly, that the happiness of the meeting was not without alloy.

Elachista Megerella. Not scarce in hedges, May 23 to June 21, and August 19 to 28.

Elachista cerussella. I took three at Askham Bogs, near York, May 31, in company with Mr. Allis; also a single (very fine) specimen flying over a brook at Lewisham, August 31. It thus appears to be double-brooded.

Elachista collitella. I found this on the downs at Mickleham, July 6 to 9, but wasted.

Elachista dispilella. Five on the Dartford Heath fence, June 27; thirteen among the junipers at Mickleham, July 6 to 11, and two much wasted there, at the end of the month.

Lyonetia Clerckella. One at Mickleham, July 7; one on palings at Lewisham, August 1.

Phyllocnistis suffusella. This species occurred in July, at Mickleham, among Lombardy-poplars. On the 11th of that month, after I had myself left that delightful spot, Miss Sara R. Dunn turned her steps in a direction different from that we had generally followed, and was rewarded by obtaining a very fair specimen of *Sericoris signatana*, Dougl., and twelve fine specimens of the elegant little *suffusella* of which I previously only possessed two; on our return to Mickleham I visited these poplars pretty frequently, and as Miss Dunn not unfrequently visited them at 8 A.M., and in the middle of the day likewise, the number captured was not far short of thirty: had it not been for the almost incessant rain we had at that time, we should probably have taken many more.

Cemiostoma Spartifoliella. I bred this species plentifully from little white cocoons found on the stems of the broom at Airthrey, in June. Mr. F. Walker assures me

that in the neighbourhood of Southgate, this species feeds as a miner, on laburnum-leaves. The broom-feeding larva feeds, according to Zeller, under the bark of the stems of the broom, so that according to this aberrant mode of feeding of the larvæ, those who arrange according to the forms and habits of the larvæ, would place this one species in two different genera. (Mr. Walker has sent me specimens of his laburnum insect, in which I can see no difference from my broom fed specimens.)

Cemiostoma scitella. Very common in the hawthorn hedges, in the first week in July. Mr. Curtis informs me that the larva feeds as a miner on hawthorn leaves.

Opostega Salaciella. One at Dartford Heath, among broom, June 30.

Opostega crepusculella. Several specimens were taken by Bouchard, at Yaxley, last June; among them is one specimen which closely resembles *Opostega auritella*, *Hbn. Z.* (See Trans. Ent. Soc. vol. v. p. 125); but as the specimen is rather injured in setting, it is hazardous to declare positively that it is that species.

Bucculatrix aurimaculella. Two beat from hedges, June 17 and August 19.

Bucculatrix cidarella. I had a specimen sent me from Scotland last summer, it was taken in Torwood about the middle of June.

Bucculatrix Ulmella. Not scarce among oaks, May 24 to June 20, and August 12 to 27.

Bucculatrix vetustella. I beat a specimen of this from a mixed hedge, August 22.

Bucculatrix Cratægi. Sparingly in hedges, May 23 to June 21; two on the Dartford Heath fence, June 27.

Bucculatrix Demaryella. Two at Torwood, probably from oaks, June 1 and 5.

Bucculatrix Boyerella. Two from hedges, May 24 and June 15. These were the only specimens I saw, thus the insect was not nearly so common as it had been in the previous year.

Bucculatrix frangulella. Five from a buckthorn-bush at Mickleham, July 8; they appeared to be quite fresh out.

Nepticula atricapitella. One specimen beat from hedges, May 24. At Airthrey, N. B., June 3, I beat from a mountain ash, a single specimen of a *Nepticula*, which has dark-coloured hairs on the head, but the anterior wings are glossy gray, and without the brilliant metallic lustre of *atricapitella*, and the insect is much smaller than any of my specimens of *atricapitella*.

Nepticula ruficapitella. One at Wanstead, May 3; in hedges at Lewisham, May 13, 15 and 24; one at Torwood, June 5, and one at Lewisham on palings, July 21. The insects of this genus were mostly scarcer than usual last season.

Nepticula aurella. One from hedges, May 15; one beat from an oak, June 20, in company with *subbimaculella*; one on palings July 21; two in copula, beat from a hawthorn-hedge, July 28, (heads of both ferruginous).

Nepticula graciosella. Two from hawthorn at Sanderstead, May 5; one at Lewisham, May 23.

Nepticula centifoliella. One beat from hedges, August 4.

Nepticula ignobilella. One from hedges, May 21; two at Torwood, June 5, apparently from oak.

Nepticula argyropeza, Z. (see Trans. Ent. Soc., vol. v. p. 133). I met with this species, which is quite distinct from *angulifasciella* and *subbimaculella*, on a poplar-tree, on the moors near Woodhead, June 9, and secured about fifty of them. The markings are neither so bright nor so well defined as in *angulifasciella*.

Nepticula quinquella. Has not, I believe, occurred during the past year.

Trifurcula squamatella. Three from broom at Charlton, August 11 and 29. It appears to be rather later in its appearance than *immundella*.

Trifurcula immundella. Common at Charlton among broom, August 9 and 11; much wasted on the 20th.

Trifurcula pulverosella. Two specimens from hawthorn, May 12 and 13. Among my Mickleham captures of the beginning of July, is a specimen which much resembles *pulverosella*, but is smaller, and has a gray head, yet the anterior wings are darker than in *immundella*.

Lithocolletis Roboris. Taken by Mr. Allis in an oak wood, near Huddersfield, May 20: it has also occurred near Wakefield and Chesterfield.

Lithocolletis hortella. There is a fine specimen of this in Mr. Curtis's collection.

Lithocolletis Amyotella. Mr. Allis took six specimens between June 18 and 25, beating them from hazel, in oak woods, at Lazenby, near Penrith, at Borrowdale, and Birthwaite, Windermere.

Lithocolletis lautella. Two from stunted oaks in hedges, May 25 and 26, and twelve in the same locality, August 13 to 28.

Lithocolletis pomifoliella. I feel now completely in the dark about this and the cognate species, *elatella*, *pomonella*, *securiferella*, *Junoniella*, and am very much dissatisfied with my descriptions (Zool. 2091). I am tolerably convinced there is a distinct species, a beech feeder, of which my *securiferella*, and Mr. Sircom's *fagifoliella* are probably varieties.

Lithocolletis triguttella, n.s. This species, which resembles the *pomifoliella* group in having a basal streak, no fascia, and three pair of opposite spots, is readily known by the basal streak being dark margined on both sides, as in *lantella*, but its most distinctive character is the entire absence of a fourth costal spot. I have only seen one specimen, which was taken by Mr. Douglas, from mixed hedges at Sanderstead, May 15.

Lithocolletis ilicifoliella, Sta. (non Z.). I took a single specimen at Wanstead, May 3.

Lithocolletis Spinolella. Two among willows, on Askham Bog, near York, May 30; one attracted by light, August 11.

Lithocolletis corylifoliella, Haw. St. Sta. (Zool. 2156), *Betulæ*, Sta. (Cat.) non Zel. Having had specimens of *Betulæ* sent me by Herr Zeller, I am able positively to affirm that our *corylifoliella* is not his *Betulæ*, and consequently is a species not yet known to him; as Hübner's name must fall on account of the vagueness of the figure, there is no reason why this insect should not stand as the *corylifoliella* of Haworth. I beat this from hedges from May 6 to 26, and July 28 to August 15. Many of the specimens came from stunted oaks; if an oak feeder, it is probably polyphagous, as I have often taken it where no oaks were near. Of the Scotch species allied to this (see my Catalogue, p. 31), which may be a dark variety of Zeller's *Betulæ*, I obtained four specimens at Torwood, from oaks, June 1 and 5.

Lithocolletis connexella, Z. Mr. Allis has a specimen of this; it was formerly in Mr. Haworth's collection, and was labelled by him *Mespilella*, Var. β .

Lithocolletis scopariella. One on the Dartford Heath fence, June 27; five sitting on the stems of broom at Dartford Heath, June 30. Mr. Vaughan met with a swarm apparently of this species, flying round a furze-bush on Durdham Downs, at the end of June.

Lithocolletis Alnifoliella. On Askham Bog, near York, among alders, May 31;

also from alders at Lewisham, August 31. The pupæ very common on alder leaves, in the beginning of November.

Lithocolletis Hegeeriella. On oaks; not scarce at Lewisham, May 21 to 28; common in Torwood, Stirlingshire, June 1 and 5; sparingly at Lewisham, August 5 to 22.

Lithocolletis Emberizapennella. One sitting on grass, May 4; one at Torwood, from mountain-ash, June 5. I have had this species from Mr. Dunning.

Lithocolletis Frölchiella. One very fine specimen among alders on Askham Bog, near York, May 31.

Lithocolletis Schreberella. The pupæ exceedingly abundant in elm leaves in October, in most of the lanes near here. I have rarely met with the perfect insect.

Lithocolletis tristrigella. Common on palings under elm trees, August 13 and 14.

Lithocolletis trifasciella. Two beat from honeysuckle in hedges, May 19 and 24; one from a hedge in Birch Wood, May 27; two from a nut-bush in Mickleham, July 7; one from a hedge at Lewisham, August 19, and four bred from evergreen honeysuckle, October 27, 28, 29, and November 2.

Here I pause, for the Pterophoridae are no business of mine, and I hope Mr. Weir will shortly bestir himself in earnest about them; I will, however, just remark, that the didactyla of Haworth and Stephens is the Pilosellæ of Zeller, and that Zeller's Hieracii is the heterodactyla of Haworth and Stephens: Mr. Cooke of Warrington, took several specimens of Hieracii last summer.

H. T. STANTON.

Mountsfield, Lewisham,
March 30, 1850.

Gnawing power of Caterpillar of the Goat Moth (Xyleutes Cossus).—I placed half a dozen caterpillars of the goat moth in a glass jar, with sawdust and a piece of willow, and covered the mouth with sheet-lead, which was perforated with an awl to admit the air. Three of the caterpillars were to-day crawling on the floor; and on examining the jar, I found they had effected their escape by gnawing the lead, having enlarged two of the perforations sufficiently to enable them to pass out of their prison. I have replaced the lead by wire-gauze, which I expect will puzzle them.—J. S. Henslow: Hitcham, Suffolk, August 12, 1850.

Capture of Plusia Bractea in Scotland.—I had the pleasure of capturing a fine specimen of Plusia Bractea on the moors, near Oban, on the 19th of July last. I also saw several specimens of Charissa obfuscaria, but owing to the high wind I only captured one.—W. J. Bull; 6, Hagley Row, Birmingham, August 12, 1850.

Capture of Catocala Fraxini near Bath.—My neighbour, Mr. Knapp, son of the amiable author of the 'Journal of a Naturalist,' has shown me a damaged specimen of Catocala Fraxini, found a few days ago, apparently in a dormant state, on the bank of a canal near Bath.—J. Allen Hill; Almondsbury House, August 12, 1850.

Captures of rare Lepidoptera near Liverpool :—

Deilephila Euphorbia. I took a full-fed larva of this rare Sphinx near Formby, in August.

[This notice should have been accompanied by the name of the plant on which the larva was found.—*E.N.*]

Leiocampa Dictæoides. A specimen beaten from a birch-tree in Delamere Forest, and another at Biddestone Lighthouse, attracted by the light in July.

Pacilocampa Populi. Not uncommon at the Biddeston Lighthouse in November and December.

Lupernia cespitis. I have taken two from a ditch bank : I think it is not generally known that this insect may be taken by hunting along the sides of ditches where the grass is long : it rarely rises above the tops of the grass, and is to be found in August.

Epunda Lichenea. Three at New Brighton, by examining the furze-bushes underneath near the stems, or where any dead wood occurs, in September. I was too late to obtain it in perfection : let all collectors try early in August.

Gleechia pernigrella, of Mr. J. W. Douglas's Monograph. I bred a pair of this distinct new insect, early in July.

Gelechia mundella. I took four of this pretty species in May.—*C. S. Gregson ; 107, St. James' Street, Liverpool.*

Of killing Lepidoptera without destroying their colours (Zool. 2882).—This is a thing to which the attention of every naturalist, pursuing this branch, ought to be directed, as it is well known how injurious to the plumage of all, more or less, the use of bruised laurel leaves, sulphur, &c., is, and I would, therefore, press upon each one the necessity of making any system, which he may adopt for this purpose, as public as possible, for no one would like to receive specimens from his brother collectors bearing anything but the impress of nature's fingers. But to the subject. The greater portion of our moths, are, for the most part inactive during the day, and may therefore be pinned without difficulty. After having done so, take a quill, shaped like a pen but without the slit, and dip it into a strong solution of oxalic acid ; turn the insect on one side and pierce it just under the base of the wings : this will cause almost instant death, and the insect may be set at once. Sphinges, Bombyces, Noctux and Geometræ have all been submitted to this treatment by me. To such as the Plusias and other restless ones I administer a dose of chloroform, which renders them completely inactive during the operations of pinning and acidifying. Besides, I am inclined to think that insects killed thus, are not so liable to be attacked by mites as others killed differently, as the quantity of acid injected into the wound mixes with the juices of the body, and as they dry up, it is left in a chrystallized state. With the Micro-Lepidoptera I take another course. Having raised the lid of the box a little on one side, I blow into it a mouthful of tobacco-smoke, and again close it : if I have a series of boxes, by the time I have done smoking them, the first is ready for setting. By the means I have shown, any one may possess most perfect specimens, as I have never found them produce the least change of colour, nor fail in killing the insect at once.—*John Scott ; London Works, Rensfrew, August 14, 1850.*

Correction of a previous error.—I am requested to state that the capture of *Phorodesma smaragdaria* as recorded in the August number (Zool. 2882) was a mistake.—On this subject I venture to suggest that it would be well for entomologists before

making their records, to ascertain with certainty the name of the insect to which they wish to allude. Mr. Doubleday could supply the names of Lepidoptera ; Mr. Walker of Diptera, minute Hymenoptera, and Hemiptera ; Mr. Smith of Hymenoptera generally, and Mr. Walton of Coleoptera ; and I have not the least doubt these gentlemen would most willingly give the required assistance. The capture of *Agrotis annexa*, as recorded in the communication in question, also requires explanation ; this name I believe to have been introduced into our British lists solely by error and it is very properly removed from its place as an ascertained native by Mr. Doubleday : 'Synonymic List,' p. 12.—*Edward Newman*.

Correction of a previous error.—I unintentionally misled your readers (Zool. 2884) in stating that I had taken *Depressaria Angelicella* on *Heracleum* ; it should have been on *Angelica sylvestris*.—*J. Allen Hill ; Almondsbury House, August 12, 1850*.

[The remainder of this communication is rendered unintelligible by the abbreviations and omissions of generic names : Mr. Hill's paper in the August number, took me more time to prepare for printing than would be required to write it, and after all, I feel very doubtful whether my version of the Bg's. and Eg's. and Sci's. gives the author's meaning correctly : the Bg. I have rendered "*Beginning of*" or "*by beating*" at my own discretion, without any other guide than its position in the sentence.—*E. N.*]

Curious Anecdote of the Honey Bee.—A curious anecdote has lately been told me relating to that wonderful insect the bee, which you may, perhaps, deem worth recording in your Magazine. Mr. Robert Little of Blencowe, in Cumberland, had a swarm of bees which was duly hived, and remained quietly in their new habitation for about five hours, when they left the hive, rose again, and flew across the fields in a straight line to about the distance of a mile, where they settled on an old decayed tree, which, however, was not hollow, nor appeared otherwise to afford them any secure dwelling place. So that after remaining a short time, they again rose into the air, retracing their flight the way they had come, over hedge and ditch, till they had reached the hive they had just left, which they entered, made it their contented abode, without further thoughts of emigration ; pursuing that ceaseless round of industry which holds out a perfect model to all creatures, rational and irrational. I have no doubt of the truth of what I have related ; being, indeed, told of it by the eye-witness, the person who followed the bees throughout the whole of their singular excursion. Is there no inference to be drawn from this curious fact ? Here is a host of creatures placed in a new habitation, not of their own selection : it appears not to have pleased them at first, and that they had knowledge of a dwelling and locality they thought more suitable. This "numerous host," or their leader, or leaders, determined on emigration. But on a more critical examination of their new quarters, the first they find more eligible (though objectionable in some respects, or why did they leave them ?) therefore, like wise insects as they are, they determine to return. Here is choice, here is comparison of two objects, and a preference : "if our present situation is not all we could wish, it is at least better than the one we had fancied — we will contentedly adopt it, and be no more given to change."—*W. Pearson ; Border Side, Crosthwaite, near Kendal, July 23, 1850*.

Remarks on the Accuracy of the Representations of Animals on Greek and Roman Coins, and on the Colours of Paintings in Ancient Tombs. By the Rev. JAMES SMITH.

WITH respect to the *beauty* of ancient Greek and Roman coins there is but one opinion; and it seems to be admitted that the coinage even of those kingdoms which, in modern ages, have made the greatest advances in civilization and refinement, will bear no comparison with them as works of art. But it is not only as surpassing specimens of artistic skill, and of the perception of beauty, that these objects are remarkable. No one will deny that they are of infinite importance in the illustration of history, and in the preservation of features, upon which, but for them, we should never have had it in our power to look. And, in addition to this, it is conceived that they may sometimes be of consequence even in connection with natural science. I have been led to make this last remark by the examination of a silver coin, which I have in my possession, of Caius Julius Cæsar. This coin, as appears from the emblems on the reverse, was most likely struck when that extraordinary man was connected with the office of *Pontifex Maximus*. It is said that, in the language of Phœnicia and consequently of Carthage, the word *Cæsar* signified an *Elephant*; and hence, on the obverse of the coin of which I am speaking, there appears the figure of that animal. He is represented walking along with upraised trunk; and, on the same line and in front of him, there is also the figure of a serpent. On the exergue is the word C A E S A R in capital letters. It is all but certain that, in the time of Julius Cæsar, it was the elephant of Africa (*Elephas Africanus*) that was alone known to the Romans. Modern naturalists, and especially Cuvier, have conclusively shown that this elephant is specifically distinct from that of India, the *Elephas Indicus* of authors. And the distinction is not only well marked in the dentition, and in other parts of the internal structure, but it is at once recognizable in the outward configuration. The head of the African elephant is lower than that of the Indian and not so pointed; and, in the former, the flaps* of the ears are excessively developed,—those in the Indian elephant being comparatively small and differing also in outline.

* I think I have seen it mentioned somewhere that, in certain parts of Southern Africa, the natives are in the custom of using these flaps as a sort of *basket*, or rather *truck*, for the conveyance of materials.

Moreover, in the African* species there are but three toes on the hind foot. The coin, to which I have adverted, measures only 7 lines† in diameter,—twelve of them making an inch. Of these the figure of the elephant occupies in height not more than $3\frac{1}{2}$. And yet, when examined through a glass, and even by the naked eye, it is seen that in this figure, small as it is, the distinguishing characteristics of the African species, — the flat head — the immense flap of the ear — and the three toes on the hind foot, — have all met with due attention on the part of the artist. They are minutely and accurately given, showing that he must have faithfully copied from the life. And from this circumstance I should be inclined to infer, that, when executed during the best ages of art, portraits, from Greek and Roman mints, of natural objects, as to the accuracy of which we may not ourselves be so capable of judging as in the case of the elephant, are, nevertheless, well entitled to our respectful consideration, from what we have experienced in other instances of the general character of the artists.

While thinking of the use which may arise to natural science from the coins of Greece and Rome, the mind will likely advert at the same time to the probable importance in this respect of those coloured paintings in the tombs of the ancient Pharaohs, which, after being buried for ages in the sand have once more been brought to light; and by which we, who are still alive, are now enabled to mingle, as it were, amid the daily occupations of those dusky beings, who, although of the same nature with ourselves, have ceased for thousands of years to exist on the earth. In reference to these, and in connection with the *purple* colour of the ancients (Zool. 2506), will you allow me to take notice, which I omitted to do in my communication on that subject, of a learned and interesting work by Mr. Osburn, entitled ‘Ancient Egypt; her Testimony to the Truth of the Bible.’ (London: Bagster, 1846)? In his account of the various tribes of Canaan, Mr.

* We are informed by Pliny (Hist. Nat. Lib. 8, cap. 2), that a century or two before his time (he perished in an eruption of Vesuvius, A. D. 79), *ivory* was so abundant in Africa, that in some places on the confines of *Æthiopia*, the fields were fenced in with elephants’ tusks; and that the inhabitants constructed their door-posts of those materials,—in the same way as, in the present day, we sometimes see, in this part of the country, the posts of a park-gate composed of the jaws, united at the top, of the common Greenland whale (*Balæna mysticetus*).

† A useful engraving, called a *step-ladder* (*stufenleiter*), for ascertaining the actual and relative size of coins, will be found in vol. 2, part 1, p. 598, of the ‘Catalogue of Coins belonging to Herr Von Wellenheim.’ Vienna, 1844.

Osburn notices the city of Tyre, and he gives a portrait of one of its inhabitants from a painting in the tomb of Ramses Meiamoun, of which, as he informs us, the colours in the original are perfectly preserved. This Tyrian, from the circumstance of his being made to represent his highly celebrated city, is doubtless arrayed in the most splendid dress, and is intended, in all likelihood, to typify a personage of no common importance. Speaking of the woollen mantle and tunic which he wears in the painting, the author says, "Their colours seem to set at rest the difficult question as to the tint denoted by the Tyrian dye. They are both purple and scarlet; and are so made, that one half of the person is clothed in the one colour, and the other half in the other. Both colours are extremely vivid, as the Greek and Latin authors uniformly represent them to have been;" (p. 115). It is to be presumed that the colours on Mr. Osburn's plate are an exact, and, indeed, an identical representation of those in the original painting in the tomb. And yet, if this is the case, the matter appears to be altogether inexplicable; for it is to be observed that although, as is said in the text, the one half of these Tyrian garments is undoubtedly *scarlet*, it is not less true that the other half is not *purple*, as expressly declared by our author, but is a vivid and most decided *blue*, approaching in clearness and intensity to ultramarine itself. Mr. Osburn, moreover, remarks that this gorgeous dress agrees perfectly with the refinement and luxury which all the classical authorities ascribe to the Tyrians, and which are so vividly described by the prophet Ezekiel, (p. 116). And one of the passages which he gives from that prophet in confirmation of what he is saying is the following, "these were thy merchants in all sorts of things, in *blue* clothes and brodered work;" (Ezek. ch. 27, v. 24). Now, it humbly appears to me that this verse is a remarkable and most unsuspecting testimony to the accuracy of the prophet, inasmuch as it coincides so entirely with one of the colours in this most ancient, undoubted, and unlooked for painting of those cloths, which were held in the greatest estimation at Tyre, but that, the colours of these cloths being represented by Mr. Osburn as *purple* and scarlet and not *blue* and scarlet, it is calculated with no less certainty not to confirm, but materially to weaken his representation. I am, therefore, unable to see in what manner the painting of which we are speaking, can possibly be said to set at rest the difficult question as to the tint denoted by the Tyrian dye, that is, as I understand the words, the *royal tint of purple*. Nor is this all. On the scarlet half of the mantle worn by this Tyrian representative of his city, there is a number of circular spots of a dull purplish black.

Mr. Osburn supposes, and perhaps with justice, that these were imprinted upon the scarlet, in much the same manner as spots of a similar character are produced upon the calico prints of the present day ; and with reference to them he says, "the broidered work mentioned in these two passages of Ezekiel may be the printed cloth we have just described;" (p. 117). But I think your readers will almost unanimously be of opinion that Mr. Osburn is unfortunate in his supposition ; and that the prophet is evidently referring to those dresses, which, besides being of the finest wool and the most splendid colours, had their beauty and value still further enhanced by a variety of figures sewed upon them in threads of silver and gold. Hence, as every one knows, the phrase to embroider is in Latin *acu pingere*, literally to *paint with a needle* ; and Virgil, describing the dress of a warrior arrayed more splendidly than usual, says of him, *pictus acu chlamydem*, *painted with a needle as to his chlamys* ; or, as we should say in English, *having on an embroidered military cloak* ; (*Ænead. lib. 9, v. 582*).

But, although the painting in question would certainly appear to throw no light whatever on the enquiry as to what was the particular tint of the royal purple of Tyre, it is nevertheless, beyond all doubt, an object of very great interest ; and it may, perhaps, go far in supplying us with satisfactory grounds for more conclusions than one. For instance, we should not for a moment be inclined in the present day to regard the scarlet tint, which it exhibits, as at all remarkable for clearness and brilliancy. On the contrary, it has no little of a muddy complexion, and of a tendency towards a dusty red ; and from this we should be inclined to infer that, when the writers of antiquity speak of the intensity and lustre of the dyes which were in their day the most famous, they ought to be understood in a *relative*, rather than in an *absolute* sense ; that these dyes appeared so exquisite to them only in the absence of others still more exquisite ; and that the dyes of the times in which we ourselves live, are not only obtained from sources different from theirs, but that they are communicated by a more scientific and skilful process ; and are, consequently, superior both in permanency and in beauty.* With respect, moreover, to the

* There is in Duff House, the principal seat of the Earl of Fife, a large piece of Gobelin tapestry, which I have often looked at with admiration. The colours contained in it are of the most intense and brilliant description. The various shades of red, such as crimson and scarlet, are especially vivid and glowing ; and, in comparison, the scarlet of the Egyptian painting, of which we have been speaking, must be regarded as dull and insipid.

blue in this painting, which is, in its way, much more vivid and intense than the scarlet, it is not perhaps extravagant to suppose that an interesting enquiry may be raised. On consulting the version of the Septuagint, I find that, in the verse of Ezekiel which has been quoted above, the Hebrew word for *blue* is rendered by *huakinthos*. In preparing the garments in which the Jewish high-priest was to officiate, there is an especial direction that the robe of the Ephod, which is believed to have reached from the head to the feet, should be woven work all of *blue*; (Exod. ch. 39, v. 22). In their translation of this verse, also, the Septuagint employ the same word *huakinthos* for blue, and it is used in like manner by Josephus, the Jewish historian, whenever he has occasion to make mention of blue in the elaborate description which he has left us of all the particular colours and ornaments, which appeared on the official robes of the high-priest of his nation. Borrowing, as may be imagined, from the traditions and the conceits of the Rabbins, he tells us that every part of the garments, and every colour and ornament upon them, had a mystical meaning, and a reference to the appearance, the motions, and the objects of the universe. In this way he gives us to understand, that the blue of the robe, of the tiara or turban, and of the other parts of the high-priest's official costume, was intended as emblematical of the firmaments of heaven; (Antiquit. Judaic. cap. 8). Now, in the Egyptian painting which has suggested these remarks, the blue is of that deep and beautiful colour, which we are assured by travellers is the usual hue of the heavens in all such climates as that of Judea during the serene and the genial period of the year. Taking all these various circumstances, therefore, in connection, we shall not perhaps be far wide of the truth, if we believe that, in the blue of this most ancient painting, we are looking on the very shade of colour by which, under the injunction of Jehovah himself, the robe of the high-priest of his chosen people was marked. And if this is the case, it is a painting which, by a Christian, will be looked upon with more interest and emotion than if it had indicated, in the most vivid manner, the particular tint of purple of the most costly robe, that was ever put on by the most magnificent monarch of the heathen world.

JAMES SMITH.

Manse of Monquhitter, Aberdeenshire.

April 29th, 1850.

On Sea-Fowls Breeding in Moray Firth.

By the REV. JAMES SMITH.

IN a former communication (Zool. 1908) I mentioned that in the parish of Gamrie, which lies along the shore of the Moray Firth, there is a breeding-place of those birds which are known by the general name of *sea-fowl*. The coast where they in this case assemble is perhaps one of the finest in the kingdom. The rocks, which are its most striking and characteristic feature, are of the old red sandstone formation. They have, generally speaking, a dingy and rust-colored appearance, and they visibly contain a very considerable number of conglomerates. Of many, or rather, of almost the whole of them, the height is great; and, when they are closely approached in a boat, the appearance which they present is of the most imposing character. They rise up before the spectator, and in some cases hang over his head, as if they were stupendous bulwarks, erected by the hand of nature for keeping in continued fulfilment the divine announcement, which says of the ocean, "hitherto shalt thou come but no further;" (Job, ch. 38, v. 11).* In the tempests of winter, the waves are dashed against the precipices formed by these rocks with a magnificence, and a noise, which require to be seen and heard; and of which no words, however vivid, can convey an adequate conception. But on a calm and unclouded day in summer, especially when the little breath of wind that is to be felt comes off directly from the shore, the sea may be said to be asleep, as it were, even to the very

* Through the kindness and attention of Mr. William Gruer, officer in the Coast-guard Service, Pennan, I am enabled to state the altitudes of the more remarkable of the rocks along this coast. They are the result of a government survey, and may, therefore, be implicitly relied upon as being of the strictest accuracy. The height of Gamrie *More* (i. e., the *Big Gamrie*), is 403 feet; Cruivie Head 280 feet; Troup Head 389 feet; the Kittie Rocks 140 feet; and Pennan Head 352 feet. This last mentioned, which is popularly known as the *Black Head of Pennan*, is one of the most noticeable among them all. When viewed in a particular direction, there is seen, near to its summit, a striking profile of the late Mr. Pitt. It is exactly such as often occurs in the caricatures of that eminent statesman from the pencil of Gilray. It is said that a neighbouring proprietor, who was an ardent admirer of Mr. Fox, often complained, that he could not go to his own door without having brought before his eyes the unwelcome visage of the great opponent of his political chief. A small rock lying a few yards to the north from Troup Head, and appearing by itself above the surface of the water, is called the *Firlot*, and is the most northerly point of the whole Moray Firth.

foot of the rocks : it is then calm and unruffled, and to the delighted eye, it has the appearance of an immense surface of glass. Beneath the immediate shade of the enormous precipices by which it is overhung, its colour is of a rich but diluted Prussian blue. Farther off, the tint is softened into a clear and transparent azure ; and, here and there, in places where the floor of the sea is probably of a fine and unshaded sand, there are to be seen lines and bands of the most delicate green ; while in patches, of which the bottom is most likely covered with weeds of various descriptions, the appearance is of a dull, but deep-toned purple.

I had the pleasure of visiting these rocks lately (June 28th), but I was sorry to observe that the interesting birds, by which at one time they were covered in thousands, are now every year rapidly diminishing in number. This must be attributed, without any doubt, to the shameful persecution to which, during the breeding-season, they are incessantly subjected. Multitudes are destroyed for no apparent purpose whatever, unless it be for the gratification of the mere wantonness of mischief, and of that propensity, which would seem to be a prominent feature in the present nature of man, to take life away on every occasion when he has the opportunity and the power. The great majority, however, are shot by fishermen from the adjoining villages ; and to this they are led by selfish and interested motives. The feathers of the birds which they kill, are made use of in stuffing beds and pillows, and also in other domestic purposes. And, although the proprietor, on whose estate these rocks are situated, is anxious to protect the winged inhabitants by which they are enlivened and adorned, he, nevertheless, does not possess the legal power to do so, inasmuch as the ocean, from which they are shot, is considered as a liquid highway, of which no individual can claim the exclusive possession. An act of the legislature, however, could, it is presumed, communicate to the several proprietors on whose estates rocks thus tenanted are to be found, the ready and effectual means of saving *sea-fowl* from extermination, in the same manner as it has done in the case of the land and the fresh-water birds, which are spoken of under the general denomination of *game*. Nor would powers of such a description interfere, in any respect, with the improvements of the present day. The snipe, the wild duck, and the various other birds, by which the marshes and the fens of our country were at one time thickly inhabited, are very sensibly decreasing ; and in many localities have wholly disappeared, before the advances of drainage and cultivation. And such a result is unavoidable in the progressive

course of society. But, with respect to sea-fowl, nothing of this nature can occur. The rocks on which they breed, will, we have reason to think, stand firm in all their magnificence while time continues to endure; against them the hand of man, however powerful, will never be lifted up; and adequate and practicable protection from the law is the only thing which is required, not only to preserve, but yearly to increase the numbers of those confiding strangers which come among us at the appointed season from more southern climates, to engage in the important duty implanted in them by their Creator, of continuing their kind. It is surely painful to think, that the reception which they meet with from those who boast of that reason which the Almighty has seen proper to withhold from them, is, in a multiplicity of cases, a wanton, a cruel, and a long protracted death.

The precipices, which during the breeding-season are more particularly resorted to by the sea-fowl on the coast of which we are speaking, commence a little to the eastward of the fine promontory known by the name of *Cruvie-head*; and they extend for a considerable way, in the same direction and with more or less of interruption, towards the fishing village of Pennan. Of some of them, the surface is almost entirely naked from the bottom to the top, presenting a succession of horizontal fissures and ledges, resembling a gigantic wall of Cyclopean structure. Others are partially marked with patches of vegetation; and a few are covered over with rich and luxuriant grass, amid which are interspersed a variety of sea-shore plants,* and nu-

* Among these may be enumerated *Arenaria marina* (Sea Sand-wort); *Silene maritima* (Sea Campion); *Cochlearia officinalis* (Common Scurvy-grass). A belt or band of this plant runs up the middle of the precipice, where the razorbills and kittiwakes are principally to be found. It is well known to the country people for its antiscorbutic properties: by them it is termed *Screebie girss*, a name in which an Englishman would probably have some difficulty in recognizing the words *scurvy grass*. *Statice Armeria* (Common Thrift, or as it is here called, the Sea Daisy); *Plantago maritima* (Sea Plantain). The habitat of which we are speaking seems so favourable to the development of this plant, that the leaves of the specimens are nearly as broad as some of those of the *Plantago lanceolata*, which last is known over all this part of the country by the strange and apparently unintelligible name of *Carl doddie*. *Saxifraga oppositifolia* (Purple Saxifrage): this is considered a rare plant, especially in such a habitat. It was long believed by botanists that it was to be found only in mountainous districts, and at a distance from the sea. *Saxifraga hypnoides* (Mossy Saxifrage, or Ladies' Cushion); *Rhodiola rosea* (Rose Wort). For the identification of these plants, I have been indebted to Alexander W. Gardiner, Esq., of Greenskairs, a proprietor in the Parish of Gamrie, and in whose company I had the pleasure of making the excursion of which I am speaking.

merous crags and fragments of stone scattered about in every direction. These precipices last-mentioned are, of course, less perpendicular and steep than the others. In a calm day, and with a small boat, it is possible to land at the foot of almost all of them; and, from such a position, to look up at the immense and frequently overhanging wall affords a spectacle of no common description. The ledges are so extremely narrow as to be scarcely distinguishable by the naked eye; and the numerous rows of birds which appear upon them in regular order, the one above the other, from about the middle to near the summit of the cliff, seem to the beholder as if they were but a multitude of bats clinging closely to the surface, so that he cannot figure to himself in what manner it is possible for them safely to deposit their eggs and to hatch their young, on a space to all appearance thus exceedingly contracted. The different species of birds which are seen on the ledges, are the common guillemot (*Uria Troile*) or queet, the razor-bill (*Alca Torda*), hawk or cooter, and the kittiwake (*Larus tridactylus*) or Kittie. They are all associated together; but, so far as my observation goes, they are at the same time in distinct uniform, and independent companies. First, for example, may be observed a line of perhaps twenty or thirty razor-bills. These may be followed by a dozen or two of kittiwakes; and after them may come a succession of guillemots. Sometimes, again, separate ledges will be found occupied by separate species. The kittiwakes take possession in preference of those ledges where there are naturally tufts of grass, or where they can construct an artificial although a rude nest of that material, as it is believed that upon such a surface they uniformly deposit their eggs. The puffin (*Mormon Fratercula*), or *Tammy Norie*, or, as it is sometimes simply called, the *Tammas*, is also one of the sea-fowl now under consideration. When it breeds on the same precipice with the birds already mentioned, it lays its egg in fissures: these fissures are very narrow, although frequently long. They extend a considerable way into the rock, and are generally horizontal, but occasionally vertical. Especial care seems to be taken by the bird to avoid all such among them as may be liable to be reached by the waves, even when the tide is at the very highest. There is in this case but little appearance of a nest; but, when incubation is well advanced, a few grasses will be usually observed, intermixed with a sprinkling of feathers from the bird. In such fissures as these, the nest can only be reached by means of a stick. The bird sits very closely and determinedly upon it; will not be induced to quit it except by force; and, with its singularly constructed and formid-

able bill, bites most severely in its defence. Most frequently, however, the puffin will be met with on the precipices, which are of a more grassy and a softer character. Here they make their nest, either beneath the stones or boulders which are lying scattered about, and many of which are of large dimensions, or, with their powerful bill, they dig for themselves a hole in the ground for the especial purpose. In this case, their nest is got at with less difficulty than when they breed in the fissures of a precipice. Another of the birds to which we are directing our attention, is the herring gull (*Larus argentatus*), or pew-il; and it is only on the precipices which are overgrown with grass, that it is to be encountered.* Of this material its nest, which is more easily accessible than that of any of the others, is invariably composed. Along the lofty and widely extended cliffs, where the surface is bare, the house martin (*Hirundo urbica*) may now and then be seen entering its nest, which it has attached to the overhanging rock; and several examples will also be observed of the large and picturesque black swallow, or swift (*Cypselus murarius*). The jackdaw (*Corvus monedula*), or kae, will, moreover, occasionally make its appearance. In all probability it breeds there; and by those who have been long familiar with these rocks, and with their feathered inhabitants, it is accused of devouring the eggs of the sea-fowl. Whether or not this is the case, I cannot, from my own observation, affirm. At various points in this bold and most striking portion of the coast there are caverns, some of which extend a far way into the rock, and, in one or two instances, they have even a communication with the land.† These a boat may, in calm weather, readily enter for a considerable way. On the flat, and sometimes rather broad ledges, which are to be seen on their sides, many of the guillemots take up their abode and bring forth their young; but, so far as I have ob-

* The herring gull and the kittiwake, with the snow-white head and breast, and the delicate mantle of pearly-blue, by which they are both of them adorned, will be easily and quickly recognized at the greatest distance and by the most inattentive observer; while the difference in their relative size, the former being nearly twice as large as the latter, is sufficient effectually to prevent them from being mistaken the one for the other.

† Of these, the most remarkable is known among the people of the neighbourhood, by the expressive name of *Hell's lum*, that is, *the chimney of Hell*. In a wintry tempest, when the ocean is once thoroughly aroused, and when, in quick succession, it pours its waves into this tremendous chasm, the noise which arises is like that of thunder, and the spray issues from the mouth on the land side as if it were smoke, ascending in impetuous volumes from the infernal regions. Hence the local name which this cavern has obtained.

served, neither the razor-bill nor the kittiwake has recourse, for such a purpose, to a locality of this description.

On standing at the foot of these lowering and gigantic precipices, and firing a gun, the scene which is presented to the spectator is animated and striking in no ordinary degree. As he looks up, he sees whole rows of birds starting simultaneously from the ledges between him and the summit. On throwing themselves from their nest, they instinctively make their legs to diverge as widely as possible, forming, in this manner, a sort of base or rudder to steady themselves in their descent, and to counteract the weight of their head. This position they preserve till they have reached that particular level at which they intend to commence their onward flight. They then draw their legs together, stretch them out behind, and advance outward to sea with extreme vigour and rapidity, and in a straight direction from the precipice from which they have been aroused. And such a sight cannot but be extremely amusing, as well as interesting to those who have been informed in grave and authoritative works on Natural History, that the birds before them,—the guillemot, the razor-bill, and the puffin,—are either utterly incapable of flight at all, or at least can only continue, with infinite awkwardness and difficulty, to splash along the surface of the water.* They will now have ocular and

*For example, Temminck in the present day is a leading authority, not indeed in the investigation of philosophical affinities and of natural systems in groups of three and of five divisions,—in the establishment of new genera, and in the multiplication of learned and long, sounding names; but, beyond all doubt, in the accurate and minute description of the different appearances of plumage which are exhibited by one and the same bird, at different seasons of the year, and at different periods of its existence,—in reducing, in this manner, the number of supposed and established species,—in the unravelling and simplifying of synonyms,—and, generally, in the statement of facts, which are to be derived from the contents of a museum, as well as of those which he has himself witnessed in regard to the habits and migrations of the feathered race. And it will be acknowledged, it is imagined, by every candid student of Nature, that, in these respects, his merits are eminently conspicuous; and that the services which he has rendered to Ornithology are of the most extensive and important character. And yet, on the birds to which we are directing our attention, he has, among others, the following observations. Of the guillemot he says, “leur vol est de très-courte durée, et toujours en effleurant la surface des eaux. Pour atteindre à leurs nids, qu'ils placent le long des rochers escarpés, à une très haute élévation, ils sautillent et voltigent d'une pointe à l'autre :”—“their flight is of very short duration, and is always performed by grazing the surface of the waters. In order to reach their nests, which they place among steep rocks at a very lofty elevation, they hop and flutter from one point to the other.” Of the puffins he remarks, “les oiseaux de ce genre volent moins que les guillemots; cependant ils ne sont point privés de cette faculté, et

most convincing demonstration that the very contrary is the truth; that the flight of these birds is frequently at an elevation of some hundreds of feet; and that it is performed with great swiftness, and with a quickly repeated beat of the wings. That of the puffin, or *Tammy Norie*, is especially rapid, and very much resembles the settled flight of the snipe, after the cessation of those preliminary zig-zags, which, in the case of that bird, are sometimes so annoying to the sportsman.

Many are unable, at any considerable distance, to distinguish between the guillemot and the razor-bill. A well-marked and obvious difference may, however, be at all times found in the colour of their head and back. In the guillemot, these parts are of a delicate mouse-brown hue, while in the razor-bill, they are of a decided black. The bill of the latter is also much stouter, thicker, and less pointed than that of the former, and has the additional distinction of a pure white transverse furrow in the middle. Moreover, when flying, the razor-bill may be recognized by a conspicuous stripe of white which extends along the outward extremity of the wing. The puffin can scarcely be mistaken by the most careless spectator. The rich colours of its bill and legs are at once sufficient to ensure it attention.*

effleurent assez rapidement la surface des mers : "—“ the birds of this genus fly less than the guillemots ; nevertheless they are not destitute of this faculty, and they graze rapidly enough the surface of the seas.” Of the auks he speaks thus, “ quelques espèces, parmi lesquelles on doit énumérer celle qui est la plus répandue en Europe, volent très rapidement, mais le plus souvent en effleurant la surface des eaux : ”—“ some species among which ought to be enumerated that (the razor-bill) which is distributed the most largely in Europe, fly with great rapidity, but most frequently by grazing the surface of the waters.” In a note he corrects Cuvier for saying that the wings of the razor-bill are so short as to prevent it from flying. Lastly, the birds in question are represented by him as breeding only within the arctic circle. (Manuel d'Ornithologie, 2de partie, pp. 920, 932, 936). On the foregoing quotations, and with respect to sea-fowl in general, all that I would wish to say in the case of Temminck is this, that, so far as I have been able to judge, he has described very accurately whatever has come immediately under his own personal observation ; but that, never having himself apparently visited any of the places where they breed, he has, in not a few particulars, been misled by trusting to the compilations of those ornithological writers by whom he has been preceded, — such, among others, as the eloquent but frequently in accurate Buffon.

* A specimen of the puffin being wanted for preservation, one single individual was shot : it proved to be a very fine male. When newly killed, and as it lay on its back on the calm surface of the sea, the legs and feet, as also the inside of the mouth,

When an alarm occurs among such an immense and varied assemblage of sea-fowl, it is interesting to listen to, and to mark, the cries which are given forth by the different species. The herring gull ascends high into the air, and sweeps round and round in beautiful and majestic circles far above the reach of the gun, and uttering all the while, as if in anger, a hoarse and inward-like cackle resembling the syllables *kak-ka-kak*, interrupted occasionally by the shrill and piercing scream of *pew-il*, or more accurately *pee-ol*, from which has been derived the name by which it is familiarly known in this part of the country. When the intruders by whom it was disturbed have withdrawn, it descends from its elevated region and returns to its nest, uttering incessantly its indignant scream of *pee-ol*. So soon as the report of the gun has reverberated among these precipices, the hoarse and unearthly-like croak of the guillemot arises all around; and, as it is heard proceeding from those in the caverns, it might suggest to the listener the idea that some demon was growling out his anger at his repose having been broken in upon by the restless foot of man. It resembles the word *curr* greatly prolonged, and is uttered in chorus. The cry given out, on such an occasion, by the razor-bill is of a louder and less hoarse description. It may be imitated by the words *hurray*, making the voice to dwell long upon the last syllable. In this way, when it is uttered, as it generally is, by a number of the birds in a body, it is not unlike the boisterous cheering of a congregated but distant multitude. In the case of the kittiwake, the cry which it emits has been the means of giving it a name. This cry, however, is perhaps, generally speaking, more correctly represented by the word *kittie-week*; and, when the birds seem angry and alarmed, it is *kittie-week*

were of the most intense and brilliant orange. In a very short time, however, the extreme beauty of the colour had perceptibly decayed. This shows the necessity, so often insisted upon by ornithologists, of marking the exact tint of the *bill*, *legs*, *eyes*, &c., at the very moment, and on the spot. The specimen thus obtained was one of rather a considerable flock which were swimming about in the sea, and which all took wing on being closely approached. They rose from the water without any apparent difficulty, flew off with great rapidity, and none of them gave the slightest indication of that affection for one another, which is taken notice of by Audubon as a remarkable feature in the character of this bird. His words are these, in speaking of the puffin: — "Whenever one fell dead or wounded on the water, its mate or a stranger immediately alighted by its side, swam round it, pushed it with its bill as if to urge it to fly or dive, and seldom would leave it until an oar was raised to knock it on the head." (Ornithological Biography, vol. iii. p. 107.

most distinctly articulated, and with a sharp stress upon the last syllable. I cannot say that I could distinguish any of the sounds as coming exclusively from the puffins, although they were flying around, and sitting about in great numbers; and although I endeavoured, as accurately as possible, to identify the notes of each particular species, inasmuch as it is a part of their history, in regard to which there is not, so far as I am aware, sufficient and precise information in books. That the puffin, however, has a distinct and peculiar cry, there cannot be any doubt. Along with the harsh and grating screams, and the hoarse and prolonged murmurs, which seem characteristic of sea-fowl, and which harmonize so beautifully with the diversified moods of the ocean on which they have their almost permanent abode, there come every now and then upon the ear the well-known *kae* of the jackdaw, the familiar twitter of the house martin, and the rapid and joyous scream of the swift, as, with his lengthened and sabre-like pinions, he skims, in all directions, before the face of the gigantic and overhanging cliff.

In particular caverns along the coast to which we are referring, there are companies to be found of the black guillemot (*Uria Grylle*), or, as it is there called, the *testie*. Although, however, I have examined dead specimens which were obtained from this locality, I have never had an opportunity of meeting with it alive and in its customary abode; and, as I am desirous in the present communication only to mention what I saw and heard with my own eyes and ears, I am, in consequence, unable to give any information as to its peculiar economy. It may be mentioned, in concluding, that on one of the precipices of which we have been speaking, a falcon or peregrine hawk (*Falco peregrinus*) is understood to have had her nest this season, and to have brought forth her young;* and that the raven (*Corvus corax*) also breeds here regularly every year; and thus adds his solemn and deep-toned *curreqt* to the varied sounds, which fall so pleasantly on the watchful ear of the student of Nature.

Generally speaking, the great body of the sea-fowl arrive on the

* Many years ago, when in Banff, I received from the coast of Gamrie, by means of Mr. Gardiner, of Greenskairs, the eggs of this celebrated falcon, and sent them to Mr. Hewitson, by whom they were figured in his beautiful work on 'British Oology.' The present Duke of Leeds, when Marquis of Carmarthen, procured the young bird through the same medium, for the purpose of being trained to the sport of hawking. It is understood that they were esteemed by his Lordship as more valuable than any which he was able to procure from Norway.

† Spelled in this manner by Mudie ('British Naturalist,' vol. ii. p. 182).

coast of Gamrie towards the end of April or the beginning of May, and take their departure to the South during the course of August. The *pew-il*, or herring gull, would appear to remain the whole year round.

JAMES SMITH.

Manse of Monquhitter, Aberdeenshire.

July 29th, 1850.

Unnecessary destruction of rare Birds.—I am very glad to see that the wanton destruction of rare birds has been strongly and very properly animadverted on by one of your correspondents, Mr. Willmot, of Manchester (Zool. 2878). It was my intention to have written on the subject: I think it is derogatory to the pages of the 'Zoologist' to record such wholesale and wanton slaughter, as cruel as it is useless, for no scientific object can be promoted thereby, as it is merely, probably, to place the birds in an amateur's cabinet. Having paid some attention to birds for more than thirty years, and not allowing one of any kind to be destroyed on my grounds, I have many opportunities of observing their manners and habits, which might not otherwise be afforded. I have derived much gratification occasionally from the perusal of the 'Zoologist,' and I think in many respects it is a useful publication, but I strongly deprecate the wanton destruction of rare species Mr. Willmot has alluded to. Why do not your correspondents take a leaf from the benevolent author of the 'Wanderings in South America,' (Mr. Waterton), who, in his 'Essays on Natural History' (a delightful publication) has shown how much of the manners and habits of birds may be observed by the aid of the telescope? I have little doubt some of the rare species of birds which visit Great Britain occasionally would breed here, if this destructive warfare was not carried on against them; but no sooner does a rare visitant appear than it is mercilessly doomed to destruction. I think not only the scientific naturalist, but every real lover of nature, must regret this.—*Harford James Jones Brydges; Boultonbrooke, August 16, 1850.*

The New Holland Nymphicus (*Nymphicus Novæ Hollandiæ*) *laying eggs in confinement.*—I have inclosed you an egg of the New Holland Nymphicus, laid in this country. The old bird was received in 1847, and very soon became extremely gentle and familiar, and always appeared lively and well till about three months ago, when it laid two eggs and died.—*Walter Reeves; Tonbridge Wells, August 15, 1850.*

Occurrence of the Nutcracker (*Nucifraga Caryocatactes*) *in Surrey.*—The gardener at West Horsley Place being a bit of a bird-stuffer, frequently has specimens brought to him from the neighbourhood, and three years ago, as near as he can remember, about this time of the year, a labouring man sold him a bird which he had shot on the roof of his cottage, on Clandon Common, in this county (Surrey), which he preserved, but till the other day had no notion what it was, when a gentleman from the neighbourhood happening to see it, told him that it was a nutcracker. I have since seen it, and thought that it was worthy of a corner in the 'Zoologist.'—*G. J. Webb; Milford House, Godalming.*

Occurrence of the Golden Oriole (*Oriolus Galbula*) *near Yarmouth.*—A female specimen of the golden oriole was shot near Yarmouth on the 1st instant. Another

one, probably the male bird, was in company with it at the time.—*J. H. Gurney; Easton, Norfolk, August 7, 1850.*

Note on the Sanderling (Calidris arenaria).—On the sands of Boyndie, a little to the west of Banff, four individuals, two males and two females, were shot by Mr. Thomas Edward from a flock of sanderlings, on the 24th of May, 1850. There were eleven in the flock altogether, and no other birds of a different species were in their company. Attention was drawn to them by their cry; and they allowed themselves to be closely approached without manifesting any symptoms of alarm. They were completely arrayed in what is appropriately called by Temminck the nuptial plumage. The tints, on the males especially, were as rich and as fully developed as in the ruddy Plover (*Charadrius rubidus*) of Wilson, with the description of which bird, as given by that eloquent and accurate ornithologist, they agreed in every particular. The ferruginous colour all over the plumage, with the exception of the belly, was strong and vivid, and on the throat and breast was beautifully marked by black dots rather than by streaks and blotches. The plumage of the females was a chaste and highly pleasing mixture of hoary, black, and ferruginous. In both the latter was a collection of eggs, each of them as big as the head of a pin. It is believed that it is not usual to meet with the sanderling at so late a period of the breeding season on any portion of the British coast. In its habits, it is not nearly so shy as the ring dotterel (*Charadrius Hiaticula*), with which it is very frequently found associated, especially on its arrival from its polar migration towards the end of the year, and during the continuance of winter. As it is feeding, it has a hobbling and a pattering motion: it keeps daubing with its bill in the sand at every step which it takes; whereas the ring dotterel or sand lark, having given one daub, runs on for a few yards or so before making another. When not feeding, the sanderling sits with its neck drawn in: it does not at any time run so quickly and nimbly as the ring dotterel. When a flock of them is associated and mixed with one of ring dotterels, and when the united body is disturbed and takes wing, if only a single sanderling should remain unmoved, and should, a little after, utter his well-known cry of *curvoillie*, the other sanderlings on hearing it will immediately and without any exception fly back to their friend, and to the place from which they were aroused; but will not, on such an occasion, be accompanied by any of the ring dotterels, however many, which at first took flight along with them. These particulars I have not seen mentioned in the writings of systematic authors; and it cannot indeed be denied that our knowledge of the habits of those birds, by which the sands of our sea-shore are enlivened, is extremely meagre, vague and unsatisfactory. If your numerous correspondents, who record in the 'Zoologist' the occurrence and death of specimens of the *Tringa*, *Totani*, &c., would study their habits for a period, however brief, before pulling the fatal trigger, and would transmit the particulars thus acquired for insertion in your pages, it cannot be doubted that a store of interesting facts would speedily be accumulated, of which, at present, we are altogether in ignorance.—*James Smith; Manse of Monquhitter, Aberdeenshire, August 7, 1850.*

Occurrence of the Caspian Tern (Sterna caspia) near Yarmouth.—An adult specimen of the Caspian Tern was shot at Breydon, near Yarmouth, on the 16th instant. I have been unable to learn the sex, which was probably not observed. It is said that one or two other specimens of the same species have lately been seen in the same locality.—*J. H. Gurney; Easton, Norfolk, July 29, 1850.*

Occurrence of the Sun-fish (Orthogarisca Mola) off the Isle of Wight.—On the 30th ultimo, a small specimen (about 18 inches long) of the sun-fish was taken off Sea View in this island, by the yachtsmen of Le Merchant Thomas, Esq., and I believe subsequently presented to the museum of the Royal Navy Hospital, Haslar.—*Warner Varnham ; Bembridge, Isle of Wight, August 3, 1850.*

Occurrence of the Tunny (Scomber Thynnus) near Weymouth.—Yesterday, July 25th, a specimen of the common tunny, measuring eight feet six in length, was caught off the Chesil Beach in a mackerel net. The captors sold it for twenty-five shillings, to two men who are reaping a rich harvest by exhibiting it at threepence each person, in a temporary tent they have erected on the sands.—*William Thompson ; Weymouth, July 26, 1850.*

Proceedings of the Zoological Society.

Monthly General Meeting, August 1.—W. YARRELL, Esq., V. P., in the chair.

The Earl of Abergavenny, Sir. J. Ramsden, Bt., The Hon. A. Russell, the Hon. Capt. G. Campbell, R. N., Capt. W. Payne, the Rev. H. J. Cummins, and H. Padwick, Esq., were elected Fellows. Arthur Walker, Esq., of Port Natal, was elected a Corresponding Member. Viscount Newport, M.P., Sir Cornwallis Ricketts, Bt., G. Ransome, Esq., and H. Wordsworth, Esq., were proposed as candidates for the Fellowship.

The Report of the Council stated that the number of Fellows elected since the 1st of January exceeded the whole number of elections in 1849, by 11 ; that the number of visitors to the Gardens during the month of July exceeded the corresponding period of 1849, by 34,484, and that the total number of visitors since the 1st of Jan. exceeded the number admitted in the whole 12 months of 1849, by 59,810. The Report concluded by stating that Her Majesty had honoured the Society by visiting the Gardens on the 18th ult., for the purpose of seeing the hippopotamus, and had been most graciously pleased to add to the collection the most remarkable example of land tortoise (*Testudo elephantopus*) which had ever reached this country.—*D. W. M.*

Proceedings of the Entomological Society.

August 5, 1850.—G. R. WATERHOUSE, Esq., President, in the chair.

Mr. F. Smith was balloted for and elected a Member of the Society.

The President read a most interesting letter from Mr. Spence, informing him of the death, on the 4th of July, of the Rev. W. Kirby, Honorary President of the Society ; Mr. Westwood moved, and Mr. Stephens seconded, and it was unanimously agreed to request Mr. Spence would have the kindness to draw up for publication in the Transactions, a biographical and bibliographical memoir of Mr. Kirby, in which the substance of his letter should be incorporated, and also that he would allow a portrait of Mr. Kirby, in his possession, to be lithographed and added. The President then submitted to the meeting, that out of respect to the memory of Mr. Kirby, all scientific business should be adjourned, which was unanimously agreed to.—*H. T. S.*

NOTICES OF NEW BOOKS.

1. *Catalogue of British Birds.**

Mr. George Robert Gray, the senior assistant of the Zoological Department in the British Museum, has just completed a synonymic list of British Birds, which will be found extremely useful to ornithologists, not only among ourselves, but on the continent. Every generic and specific name employed for a bird is given, together with the date of publication, thus settling at a glance the question of priority. The work is one of great labour and is highly creditable to its author: it is impossible for a British ornithologist to prosecute his studies without its assistance. Under each species is given a list of the specimens in the British Museum, together with the sources whence they were obtained.

2. *Introduction to Conchology.†*

Conchology is one of those fashionable pursuits which may be said to carry more sail than ballast. Mammology, Ornithology, Ichthyology, Entomology, and the other *ologies*, require all the lubrication which the skilful pen and graceful pencil can bestow, to make them go down with a fastidious and somewhat superficial public; but Conchology is a *furor*, and alas! its advocates, whether dealers or collectors, are too often perfectly satisfied with knowing the comparative rarity, and as a sequence, the money-value of any given shell that may chance to be offered for their inspection. An introduction to Conchology, in order to meet the taste of conchologists, should, therefore, supply this information; but Dr. Johnston's book fails in this; indeed, in his brief but very explicit preface, he declares his "object is to present the conchologist with a view of the economical, physiological and systematical relations of molluscous animals to each other, and to other created beings." Now this object, the only one the author professes to have in view, is also the only one he has carried out; and it has just as much to do with Conchology, whether considered as a

* List of the Specimens of British Animals in the Collection of the British Museum. Part III. Birds.

† An Introduction to Conchology, or Elements of the Natural History of Molluscous Animals, by George Johnston, M.D., L.L.D., &c. London: Van Voorst, 1850.

scientific or fashionable pursuit, as the manufacture of tortoiseshell combs with the culinary achievements of the London Tavern. Next to the author's very candid and truthful avowal which I have cited above, the best evidence of my assertion will be found in the headings of his chapters: after the first, which is merely introductory, the subjects discussed follow in this succession.

"The hurtful Mollusca, the Teredo, the Slugs and Snails, Monstrous Cephalopods, the Aplysia or sea hare, poisonous Mollusca, the Mussel, Oyster, Edible Mollusca, dependence of animals on each other, Mollusca food to quadrupeds, to birds, to fishes, Mollusca used for baits, food to insects, food to man, the Oyster, the British Oyster Fishery, the French Fishery, Oysters, the Mussel and Cockle, other Edible Bivalves, Periwinkles and Whelks, Mollusca, their use with savage nations, Edible Cephalopods, &c."

The author, under these various heads, brings together a vast amount of agreeable matter, which exhibits the result of extensive and diversified reading, but he certainly loses sight altogether of the title he has selected, and mentions Conchology and shells only incidentally. The work is in fact an introduction to the Natural History of Mollusca, more especially with reference to their economy and physiology, as his second or explanatory title sets forth.

Under the head "poisonous Mollusca" we find the following agreeably compiled passage:

"There are some less doubtful poisonous Mollusca. Delle Chiaie mentions it as a fact, that the fresh-water mussel and oyster become poisonous in summer, on which account their sale is prohibited during that season in all southern Europe; and we, in the north, are as effectually restrained from their use, by a popular tradition of their unwholesomeness in the months that have no R in their names. It seems certain also that oysters, in general wholesome and easy of digestion, do occasionally become noxious when in season, as was partially observed in Holland during the year 1821. Lentilius mentions, that when he was at the Hague, in 1713, a certain ambassador gave a luxurious supper to some of both sexes of his own rank, and that no delicacy might be wanting, oysters of a green colour were procured from England. All who eat of these were immediately seized with severe colics, and were with difficulty cured. It was afterwards ascertained, says Lentilius, that the merchant, whom he anathematizes with his whole race, had pawned upon the ambassador some common oysters, tinted with copper, for the true greens. In the West Indies some suspicion is attached to those oysters which adhere

to the mangrove trees : and in China, as I am informed by my friend Dr. W. Baird, the sailors in our India merchantmen are prohibited from purchasing a large clustered kind of oyster, taken from a bed near the mouth of the river at Whampoa, and brought for sale by the natives, it having been found that they were the cause of unpleasant symptoms. On the shores of the West Indies, there is found a large pale Chita, said to be poisonous ; while again in the East, the fish of *Mitra episcopalis* enjoys, probably unjustly, the same reputation, but you must be guarded against the assertion of those who say that this Mollusk wounds them who would touch it with a kind of pointed trunk ; this can only be the proboscis, an instrument unfit for the purpose, but of extraordinary length, the animal being able, according to Mr. Stutchbury, to project it to the distance of five inches. But certainly of all Mollusca the Mussel (*Mytilus edulis*) is that which proves most frequently poisonous. I have known them to produce an itchy eruption and swelling over the whole body, attended with great anxiety and considerable fever. 'On some parts of the coast of Yorkshire, where mussels are abundant, a belief is prevalent among the people that they are poisonous, and they are consequently never eaten.' Many cases are on record in which their use has proved fatal. A case, says Dr. Bateman, is mentioned by Ammans and Valentinus, in which a man died so suddenly after eating mussels, that suspicion of having administered poison fell upon his wife. Some of Captain Vancouver's men having breakfasted on roasted mussels were soon after seized with a numbness about their faces and extremities ; their whole bodies were shortly affected in the same manner, attended with sickness and giddiness, and one died. Of the mussels of Van Dieman's Land, Captain Freycinet reports that they often enclose a small crab,* or little grayish pearls ; such mussels ought to be avoided, since they are liable to occasion severe colics. In the month of June, 1827, a great number of the poor in Leith were poisoned by eating these shell-fish, which they procured from the docks. 'The town,' says Dr. Combe, 'was in a ferment, and the magistrates, with great propriety, issued a warning against the use of the mussels. Many deaths were reported, and hundreds of individuals were stated to be suffering under it. Luckily matters were not so deplorable ; but we ascertained, that in addition to the man mentioned before, the companion of our patient, an elderly woman, had died. In all, about thirty cases

* The author should have explained that the occurrence of small crabs of the genus *Pinnotheres*, &c. in bivalve mollusks is by no means uncommon.

occurred, with great uniformity of symptoms, but varying very much in severity, but none, so far as I know, have left any permanent bad effects.' To what cause these deleterious effects are to be ascribed is uncertain, for mussels, you are aware, commonly may be eaten with impunity. The common people attribute all the symptoms to the person having unwarily swallowed the beard or byssus of the fish, but there is no doubt that the opinion is erroneous. Some of the learned ascribe them to the presence of parasitical worms, to the spawn of starfish, or to microscopical medusæ; others to the mussel having fed on some poisonous articles, more particularly on the ores of copper; others believe the mussels to be in a diseased condition, or in a state of putrefaction; and others refer all to the peculiar idiosyncrasies of the sufferers. In many cases this latter explanation will suffice, but sometimes, as in the Leith cases, it is obviously insufficient. Drs. Combe and Christison have reviewed with candour the other supposed causes, and finding reason to refuse assent to any which has been alleged, they agree that the effects seem to be best explained by attributing them to a peculiar poison generated in the fish under unknown circumstances, although the latter eminent physician and chemist admits, that in the deleterious mussels he could not detect any principle which did not equally exist in the wholesome ones. It is quite certain that putridity can have no existence as a cause, for the fish are eaten fresh or alive, and the most delicate chemical tests give no indication of the presence of copper, which, moreover, produces symptoms of a different character. Delle Chiaie has demonstrated that in many instances the poison is generated with those changes in the system that result from the pregnancy of the Mollusks. The *Arca Noë*, *Murex brandaris*, and *M. trunculus*, are great favourites of the Neapolitans, who eat them with perfect safety in all seasons except in summer or the beginning of autumn, when they are dangerous. This author has recorded two examples of their fatal effects at this season; and another of a party of twelve persons who were poisoned with the *Arca Noë*, although the only one of the party who died was the wife of the host. On dissection, he found that all those Mollusca, at this season of fecundity, were greatly altered, more especially the gland which secretes the purple fluid; and the ovaries and the branchiæ, and indeed the whole body, were filled with a clammy liquid. I am inclined to believe, with Dr. Thomas, that in other cases the poisonous principle proceeds from some particular food which, not fatal to the Mollusks, yet generates a diseased condition of the body deadly to other creatures. The Leith mussels were living in a

dock, where we may presume they were nurtured and fattened amid putrescent matters ; and Dr. Coldstream, than whom no one is better qualified to decide the point, gave it as his opinion that the liver was larger, darker, and more brittle than in the wholesome fish, and satisfied Dr. Christison that there was a difference of the kind. The oysters by which, not along ago, some people were poisoned at Havre, were procured from an artificial bed, which had been established near the exit of the drain of a public necessary ; and Dr. Chisholm mentions a fact which bears on the question, and seems to prove that copper communicates some pernicious quality to the oyster, probably by acting as the cause of some disease. The fact was communicated to Dr. Chisholm 'at St. Croix, by the late Mr. William Newton, of that island. Some time after the Santa Monica, British frigate, was cast away on the Island of St. John, one of the Virgin Islands, oysters grew on her bottom, which was coppered. Many people ate of these oysters, and although the consequence was in no instance fatal, it was such as was dangerous and unpleasant in a very great degree, producing cholera and excruciating tormina.' Further observations and experiments are, however, necessary to elucidate this interesting question. Lamouroux states that mussels never become poisonous unless they are exposed alternately to the air and the sea in their place of attachment, and unless the sea flows in gently over them without any surf ; but on this statement it may be remarked that mussels are almost always found in such localities, where they certainly thrive best." — *Introduction to Conchology*, page 18.

Dr. Johnson's bulky volume contains no fewer than five hundred pages of pleasant, readable matter, much in the same strain as this quotation, and one hundred additional pages on systems and the history of systems. In neither division of the book is there any great amount of novelty, indeed it is easy to believe the authors's own assertion on taking leave of his readers : " I have felt," says he, " as I proceeded, a growing conviction of my incompetency to the task I had too willingly undertaken " (p. 605). It is not, however, to be supposed that the most diffident are the least worthy : and, evident though it be, that the author is learning while he is teaching, and that he *may* teach, still he has learned deeply and not superficially, and we always impart that knowledge most skilfully which we have most recently acquired, and although, as I have said, the *new* does not predominate, the *true*, which is much more valuable, forms the staple of the work ; and it is with great pleasure, and after maturely considering the influence of such a recommendation, that I recommend this volume to the

notice of my readers as aptly filling a place in our Natural-History shelves which was previously vacant.

3. *Our British Warblers.**

The Nightingale seems the most slender of our British birds: it is readily distinguished by the brilliant yellow of its beak, and the snowy whiteness of its throat, breast, and belly; there is also a clear and distinct circle of white round its eye, and a large well-defined spot of equal purity on each side of the neck: the rest of the plumage is of a lead-colour, inclining to blue. Such is the nightingale depicted by Mr. Gilks, and although it does not harmonize with our preconceived, and perhaps prejudiced, ideas of the appearance of this celebrated songster, yet it is a figure of graceful proportions and pleasing appearance; and will answer the purpose of those who buy and read this class of books, quite as well as if the artist had ever seen or depicted the nightingale of nature. The Goldfinch, Blackbird and Skylark, are more like portraits, although not flattering ones; and it is evident the designer has seen the birds, or representations thereof; and also that he has not transposed the names. Turning from the illustrations to the letter-press, I may truthfully state that the compiler has collected a great deal of poetry, has quoted it correctly, and appears to have invariably applied it to the bird for which it was intended.

4. *Treatment of the Honey Bee.†*

That this little volume should have reached a fourth edition is a very satisfactory proof that it has found favour with the public. It has the several merits of being cheap, compact and explicit: the numerous woodcuts, moreover, with little or no pretension to artistic skill, aptly and clearly illustrate the text.

EDWARD NEWMAN.

* *Favourite Song Birds*, being a popular description of the Feathered Songsters of Britain, Edited by H. G. Adams. With a coloured illustration, designed and lithographed by Edward Gilks. London: Orr, 1850.

† *The Bee-keeper's Manual*, by Henry Taylor. Fourth Edition. London: Groombridge, 1850.

Occurrence of the Snowy Owl (Strix nyctea) in the North of Scotland.—William Fowler, a friend of mine, who resides at Southwell, near here, shot a snowy owl last January, near Caithness, in the North of Scotland. He was out shooting one very windy, snowy day, last January, and having shot a mallard, a snowy owl made its appearance and pounced upon the duck and carried it off. He fired to make it drop the duck, but it took no notice, and flew away with the duck. He marked it down as well as he could and followed. After searching for some time, the owl rose within forty yards of him with the duck in its talons, when he shot it. I have seen the owl in his possession.—*W. F. Footit; Newark, Notts, August 30, 1850.*

Occurrence of the Pied Flycatcher (Muscicapa atricapilla) and Baillon's Crake (Crex Baillonii) in the Marshes near Deal.—On the 17th inst. I observed a curious little bird engaged in catching flies near some bushes; on shooting it, it proved to be the pied flycatcher. I also, on the 19th inst., obtained a beautiful specimen of Baillon's crake.—*C. A. Delmar; Deal, September 20, 1850.*

Note on a Variety of the Wheatear (Sylvia Oenanthe).—I have lately seen a female wheatear, killed at Thetford in July last, which presents a curious, and, as far as I know, very unusual variation from the usual colouring of the species. The colour on the head, neck, wing-covers, back, rump, tail, throat, breast, and belly, are distributed as usual, but are severally much lighter than the ordinary colouring of these parts. The most singular thing about this specimen is, however, the circumstance of the wings being of a pure white, with the exception of a few feathers on the shoulders, and two or three adjoining primaries in the centre of each wing, which are of a pale buff colour.—*J. H. Gurney; Easton, near Norwich, September 23, 1850.*

Occurrence of the Rose-coloured Pastor (Pastor roseus) at Lowestoft.—A very fine adult male specimen of the rose-coloured pastor was shot at Lowestoft, on the 7th. inst. It had been seen in the neighbourhood for about a week previously, generally in company with a flock of sparrows.—*Id.*

Occurrence of the Redwing (Turdus Iliacus) at Abbotsbury on the 24th of August.—The Norway nightingale, as it is called, was killed at Abbotsbury, on the 24th of August. I believe this bird is very rarely caught so late in the summer on our coast. It was so tame as to allow itself to be knocked down with a stick, and from the appearance of the breast, I imagine it must have bred here, the feathers being ruffled as if from sitting on the nest.—*R. Roe; Leigh, near Sherborne, September, 1850.*

Discoloured Eggs of the Green Woodpecker.—I have again this year obtained some eggs of the green woodpecker, coloured like those, of which I sent you an account two years since (Zool. 2229 and 2301): they were taken from a nest in an elm-tree, and the hole being quite dry and no fungus of any sort growing in it, there can be no reason to doubt that they were laid by the bird the same colour that they now are. From their having been taken near the place where the coloured eggs were found in 1848, they are all, probably, the produce of the same bird.—*Alfred Newton; Elveden Hall, Thetford, September 13, 1850.*

Occurrence of the Curlew Sandpiper (Tringa subarquata) and Temminck's Stint (Tringa Temminckii), &c., at Shingle End, near Deal.—On the 16th of last month I had the good fortune to shoot the curlew sandpiper in its rich summer plumage: it was associated with a large flock of dunlins. On the 6th of this month I shot a fine specimen of Temminck's stint, which was running about with a wagtail in a small splash near the beach. The following birds are now rather common:—the knot, sanderling, ring

plover, Kentish plover, dunlin, turnstone, sea-pie, godwit, whimbrel, curlew, and red-shank.—*J. W. Hulke ; Deal, September, 1860.*

Occurrence of the Spoonbill (Platalea leucorodia) in East Lothian.—While walking with a friend on Tyne Marsh, on the 16th of June last, I was attracted by the appearance of a bird in the midst of a colony of herons ; I at once conjectured that it was either an egret or a spoonbill, and, on returning with a pocket-telescope and a couple of fowling-pieces, discovered it to be the latter, but was unable to procure it, although loaded with Ely's long range.—*John Nelson ; Kirkland Hill, Preston-on-Kirk, August 27, 1850.*

Occurrence of the Horned Grebe (Podiceps cornutus) at Manchester.—Amongst the acquisitions of local species which I have lately made to this museum, is a curious specimen of this rare inland visitor ; it was shot in the autumn of 1848, on Beswick reservoir, a piece of water almost surrounded by mills and houses. Most fortunately it fell into the hands of a skilful preserver of birds, John Howard, of Salford, in whose possession it has remained till the present time, puzzling many of the humble naturalists, who have endeavoured to make out its species. That they should not have succeeded is not very surprising, for the specimen has a very different plumage to any figure in the works of Gould and other eminent authorities, and it is hardly to be expected that it would have been recognized in the cheaper works on Natural History, which the poor naturalist necessarily looks up to as his instructor and authority : it is, however, encouraging to him to learn that the day has at length arrived when the privilege of consulting the best of works, — such as Gould, Temminck, L. Buonaparte, Wilson, Selby, Yarrell, and every other eminent writer upon Natural History, is secured to him in the free-library and museum which Salford now possesses, and in the free libraries which are springing into existence throughout the kingdom. The plumage of this specimen is worth recording :—top of the head, lower part of the neck and upper surface smoky-black ; feathers of the cheeks mottled with black and white, scarcely meeting behind the head ; a stripe of chestnut-tipped feathers extending from the base of the beak over the eyes to the back of the head, but not projecting beyond ; front and sides of the neck, flanks and rump mottled with dusky and chestnut ; under parts and throat silvery-white.—*John Plant ; Salford Royal Museum and Library, September 14, 1850.*

Addendum to the Rev. Mr. Smith's Communication (Zool. 2905) on Sea-Fowls.—In the first week of May of this year, a guillemot was brought to Mr. Thomas Edward, in Banff, which, although considerably damaged and disfigured, he had no difficulty in recognizing as the bridled guillemot (*Uria lacrymans*). Being anxious about what is so great a novelty, at least in this part of the country, he requested some of his correspondents to be on the out-look, and the consequence was that, in the first week of June following, he received another specimen of the same bird, which was in the finest condition, and apparently in the height of its plumage. This, after being stuffed, I have had an opportunity of examining. The circle around the eye, and the line extending beyond it, are both of them white, and are very distinctly marked. The bony circle enclosing the eye has an appearance, as if it were composed of a succession of small, elevated, rectangular, and transverse plates. The plumage struck me as being blacker in colour than that of the common guillemot (*Uria Troile*), and as being intermediate, as it were, between it and that of the razor-bill auk (*Alca Torda*). The two specimens now mentioned, were obtained from the rocks at Gamrie, which are taken notice of in the 'Zoologist' (Zool. 2905); and, notwithstanding that it has not

been detected until now, there is little doubt that the bridled guillemot has, all along, been associated, although in a comparatively limited number, with its more common and better known congener at the breeding-station referred to. Permit me to embrace the present opportunity to remark, that in speaking of the sea-fowl at Gamrie, I omitted to mention that, in 1837, there was sent to Banff from the rocks in that parish a specimen of the common guillemot (*Uria Troile*), the whole plumage of which was of a beautiful white, differing in intensity of colour in different parts of the body, much in the same manner as in the white variety of the peacock; where, although the colour is all over white, the *eyes* as they are called, on the tail, or train, are nevertheless distinctly visible. Those portions of the plumage, which in other specimens of the common guillemot are of a brownish mouse-colour, were in this one of the colour of cream; while all the other parts were of the purest white. The bill, the legs, and the feet were of a clay or pale yellowish cast; the irides whitish; and the inside of the mouth a faint and subdued yellow. The specimen was stuffed, and placed in the museum at Banff; but in the course of years, it became so much destroyed by moths that it was obliged to be thrown away. Notices not unfrequently occur in your own publication, as well as in others, of numbers of the land birds being found in white or albino plumage, contrary to their natural and general appearance; but, so far as I can recollect, I have seen no account of the common guillemot, nor indeed of any other sea-bird whatever, having been met with in this apparently unnatural dress. On this account, you will perhaps be disposed to consider the notice now sent, as not unworthy of a place in the 'Zoologist.'—*James Smith; Manse of Monquhitter, Aberdeenshire, September 16, 1850.*

Occurrence of the Common Skua (Lestris parasiticus) at Fleetwood.—A beautiful specimen of *Lestris parasiticus* of Temminck was shot at Fleetwood, on the 20th of August, by my friend, J. G. Leeming, Esq. The plumage of this bird is very softly blended; the dark cap of the head, and tinge of yellow over the cheeks and neck harmonizing so well. I notice that my bird is whiskered, there being a line of feathers from the base of the mouth to the extent of twelve lines of a dark buff tint, a peculiarity not observable in the figures of Gould, Yarrell, and Temminck.—*John Plant; Salford Royal Museum and Library, September 9, 1850.*

The Great Sea Serpent.

The Great Sea Serpent has again appeared with immense éclat in the newspapers. Most respectable witnesses are called to speak a word in his favor, as will be seen by the following extracts from the daily press. It should, however, be premised that a number of brief and anonymous paragraphs had previously located him "at Howth," "off Wexford," and "off Cork;" so that when he made the grand demonstration at Kinsale, he appeared to be taking a coasting trip round the shores of old Ireland.

"Courtmarsherry, August 29.

"Sir,—The following particulars, the accuracy of which need not be questioned, will, I doubt not, interest many of your readers:—

"The different fishing establishments on the shore of this extensive bay, extending from the Old Head of Kinsale to the Seven Heads, have been within the last few days

abundantly supplied with fish of every description, and the greatest activity prevails to profit by the bounty which has been thus sent to us literally in shoals. It has been noticed too, that some description of fish, haak for instance, have been captured further within the limits of the inner harbour than was ever known before. In fact, as I heard it observed, the fish was literally leaping ashore. These novel appearances, however, it was my lot to see fully accounted for yesterday (*August 23*). At about 1 o'clock, A.M. [? P.M. Ed.], when sailing in my yacht, with a slight breeze off shore, about two miles to the south of the beacon erected on the Barrel rocks, one of the party of four gentlemen on board (Mr. B., of Bandon) drew attention towards the structure, with the interrogatory of 'Do you see anything queer about the Barrels?' In an instant the attention of all on board was rivetted on an object which at first struck me as like the up-heaved thick end of a large mast, but which, as it was made out plainer, proved to be the head of some huge fish or monster. On bearing down towards the object we could distinctly see, with the naked eye, what I can best describe as an enormous serpent without mane or fur or any like appendage. The portion of the body above water, and which appeared to be rubbing or scratching itself against the beacon, was fully thirty feet long, and in diameter I should say about a fathom. With the aid of a glass it was observed that the eyes were of immense size, about nine inches across the ball, and the upper part of the back appeared covered with a furrowed shell-like substance. We were now within rifle-shot of the animal, and, although some on board exhibited pardonable nervousness at the suggestion, it was resolved to fire a ball at the under portion of the body whenever the creature's unwieldy evolutions would expose its vulnerable part. The instant the piece was discharged the monster rose as if impelled by a painful impulse to a height which may appear incredible, say at least thirty fathoms, and culminating with the most rapid motion dived or dashed itself under water with a splash that almost stopped our breaths with amazement. In a few moments all disturbance of the water subsided, and the strange visitor evidently pursued his course to seaward. On coming up to the beacon we were gratified to find adhering to the supports numerous connected scaly masses, such as one would think would be rubbed from a creature 'coating,' or changing its old skin for a new one. These interesting objects can be seen at the Horse Rock Coast Guard station, and will repay a visit. These particulars I have narrated in the clearest manner I am able, and if others, in other boats, who had not so good an opportunity of seeing the entire appearance of the animal as those in my boat had, should send you a more readable account of it, I pledge myself none will more strictly adhere to the real facts. I am, Sir, your very obedient servant,

"ROGER W. TRAVERS," in the *Cork Constitution*, Sep. 2.

"On Saturday last (*August 31*), the weather having the appearance of being settled fine, I put out to sea, determined, as far as the capabilities of my little craft would permit, to go any lengths in finding out the position of the stranger, hoping, by keeping a constant look-out in every direction, to discover him. Nor was I disappointed, the animal, lured no doubt by the dense masses of fish now off the coast, having remained within a comparatively short distance of the land. At about 11 o'clock, A.M., when off Dunwory-head, one of my crew on the look-out sang out, 'The sea serpent on starboard bow!' and on looking in the direction indicated, I had the pleasure of at once recognizing the same monster that I had before seen, and greatly do I regret, indeed, that you or some person conversant with natural history were not

on board with me. We drew as close as I thought consistent with safety, and had ample proof of the creature being piscivorous, he being at the time engaged in bolting a great number of large haak or conger-eels. I had now for the first time a view of his tail, which entirely differs from the usual form of that extremity in most descriptions of fish, being furnished with no fin, but somewhat resembling a huge elephant's trunk or proboscis, the end long drawn out and curling and twisting in a very remarkable manner. I really feel afraid to hazard expressing in figures what I judge to be the dimensions of the animal, but I do believe that if it were stretched straight from head to tail it would be rather over than under thirty fathoms long, and of that length I am satisfied fully half is seven feet in diameter. The mouth is a most capacious organ, and opens something like that of an alligator. The small size of the gills, for I could discern nothing like the blowing holes of a whale, rather surprised me. The nose, I think, is formed of a soft flesh-like substance, not bony; and from the broken condition of the external coat of scales I am satisfied, as before observed, that the beast is now in its 'coating' state. After a little time it appeared evident that he had fallen asleep, as we could perceive him rapidly drifting on shore at the east side of Dnnworly-head; and I once more, although I now feel with more rashness than discretion, resolved to try the effect of firearms in capturing him. Four rifles were prepared, brought simultaueously to bear on the animal's head, and, giving the word myself, and directing all to aim for the eye turned towards us, bang went the pieces, in a volley, the shots taking evident effect. His first movement was to shake his head and wink the wounded eye in a rapid manner, and then, as if to cool the painful wound, he suddenly dived, since when I have not had the slightest trace of him either by my own observation or through others."—*Id.*, Sep. 7.

"Monday last a party of gentlemen belonging to this city were enjoying a sailing excursion in the Antelope yacht, belonging to Mr. Wheeler, along the coast from Glandore to Kinsale. Passing the Old Head of Kinsale, the day unusually fine, they observed an extraordinary commotion of the sea, apparent to every one on board. The bay of Kinsale was at the time filled with fish. In a few moments they perceived a large serpent-like fish on the surface, that could not be less than 120 feet in length. In shape it resembled a long funnel of an immense steamer. Unfortunately they were not sufficiently near the monster to give a description of the head and body. After lying on the surface for a few minutes, it suddenly dashed ahead with a velocity, as far as could be seen for a distance of two miles, of at least sixty miles an hour. It then disappeared. It was believed that the sea serpent must have been in pursuit of the shoals of fish that thronged the bay. It is a singular circumstance that, notwithstanding the unusual quantity of fish that was observable, the Kinsale hookers were most unsuccessful, as it was stated they did not obtain a single take during the evening. The gentlemen who have witnessed the visit of the monster, and whose statement is detailed above, may be relied on as above all suspicion."—*Cork Constitution*, September 7.

"A few friends accompanied me on a boating excursion this day (Sep. 9) whose names are William Silk, John Hunt, George Williams, Heury Seymour, and Edward Barry, and, being off the Sovereign Islands, our attention was directed by one of the party to an extraordinary appearance ahead of the boat; immediately all eyes were turned to see what it was, when, to our astonishment and fright, the above monster of the deep was bearing down on us; we were at once thrown into an awful fright, and

thought it best to retreat for the shore ; on our landing, Mr. W. Silk, who was armed with a double-barrelled gun, discharged both barrels at the monster, but without effect. I need not describe his appearance, as you are aware of it before, but from inquiries from various boatmen I am told he has been off the harbour the last three days."—"JOHN GOOD, of Kinsale," in *Cork Reporter*, Sep. 11.

The next account states that a party encountered the monster in Ballycotton Bay, fired into him, and made him disgorge a school of fishes, some of which fell into the boat, and being handled, gave the crew the most terrific electric shocks ; whereupon the naturalist of the party immediately concluded, and I think, with great judgment, that the Sea Serpent is neither more nor less than the electric eel (*Gymnotus electricus*).

The last account published in London, only this day (*September 24*), records his capture and death at Youghal, in the county of Cork, together with full admeasurements, and the names of the parties concerned in the gallant achievement.

There was something that struck me as unsatisfactory about several parts of this highly exciting narrative. One o'clock in the morning, and without the assistance of a moon, was rather a strange time to make such exact observations. Again, about the scales ; why not send some to London or Dublin?—why keep them at the light-house ? And again, the bearing of Kinsale Bay did not quite correspond with my remembrance of the place : so I epistolized the chief actors, and particularly entreated Mr. Travers to send me a handful of scales, and a more detailed account : alas ! there was no response. After awhile I bethought myself of a friend in London who corresponds with the accountant of the Provincial Bank at Bandon. To this gentleman my friend, with prompt kindness, applied, and I have now the pleasure of laying his most explicit answer before the readers of the 'Zoologist.'

"Dear Sir,—In reply to your note relative to the Sea Serpent, there is not one word of truth in the statements put forward in the newspapers : there is no such person as Roger W. Travers, but there is a person named James W. Travers, to whom I believe it has been done to annoy (and indeed with great effect). Mr. Thomson's family have been staying in the neighbourhood, but do not hear a word of it, except what is to be seen in the papers about it. Dear Sir, yours truly, H. O'CALLAGHAN."

"Bandon, Sep. 18, 1850."

Any comment on this would be superfluous.

EDWARD NEWMAN.

Capture of a Swordfish (Xiphias gladius) near Peterborough.—A specimen of the swordfish, about seven feet in length, was taken in the river Nen, below Peterborough, about the latter end of August, and was exhibited in that town for some days after.—*Alfred Newton ; Elveden Hall, Thetford, September 13, 1850.*

Particulars of the Sunfish taken at Torquay.—As the sunfish mentioned in the 'Zoologist' (Zool. 2881) as having been caught off Torbay was a much larger specimen than usually occurs, perhaps a few more particulars concerning it may be acceptable. The animal, when floating on the water about two miles off Berry Head, was

run down by a fishing-boat, and a boat-hook having been struck into it, to detain it, as at the capture of the hippopotamus, a rope was got under it, and it was hauled on board, but not until it had several times nearly upset the boat by plunging. It measured 7 feet 9 inches in length, and $8\frac{1}{2}$ feet from the tip of the dorsal to the tip of the anal fin. The fish was much infested with parasites, similar to those figured by Mr. Yarrell as a vignette to his account of this species. It may perhaps be worth observing that we had two or three cloudless and extremely hot days at Torquay immediately preceding June 25th, when the animal was taken.—*Id.*

Capture of the Sunfish (Orthogarisca Mola) at Dover.—As no record of the appearance of this peculiar creature on this part of the coast has found its way to the 'Zoologist,' it would be as well to state, that a fine and perfect specimen was caught near Dover, towards the latter end of August, and presented to the Dover museum.—*W. H. Cordeaux; Canterbury, September 10, 1850.*

Capture of the Sunfish off Hastings.—On the 7th inst., a specimen of the short sunfish was captured and brought on shore at Hastings. The captors state that it was very luminous when first seen, and that it moved forwards by rolling over and over. The upper part of the fish hard, rough, and almost black; the lower part rather silvery: it measured, probably, two feet in length. The engraving in Yarrell's 'British Fishes' (taken from a stuffed specimen) is too round in profile, the form more nearly approaching to a square.—*Alfred Heales; Stoke Newington, September 20, 1850.*

[A great number of records of the occurrence of "extraordinary" and "non-descript" fishes have appeared in the papers during July, August, and September: all of them seem to relate to this well-known and remarkable species, which has visited our shores in greater numbers during the present autumn than on any previous occasion within my remembrance.—*E. N.*].

Occurrence of the Spanish Mackerel (Scomber Colias) off Brighton.—A number of Spanish mackerel having been caught in a seine, off Brighton, very recently, I had an opportunity of examining some, and comparing one with the figure given in Yarrell's 'British Fishes' (first edition). Unluckily I neglected to take any measurement, but, speaking from recollection, none of the individuals seen were more than a foot long, if so much, and some of them certainly were less. The fish were deeper, or broader, in both head and body, and the skin was less strongly mottled, than is represented by Mr. Yarrell, in whose figure the pectoral and ventral fins are too small, most particularly the former, it being remarked that the pectoral fins of the specimen examined bore a great resemblance to those of the flying-fish, being of course very much smaller, but of similar wing-like shape, and very long. In the centre of the posterior edge of the gill-cover was a rather extensive deep black spot, and the interior of the gills was also black. The lateral line, which is more conspicuous than in Mr. Yarrell's plate, commences from the head clear above the pectoral fin, beyond the extremity of which it descends somewhat abruptly below the middle of the side, whence it continues straight to the tail. In Mr. Yarrell's description, a striking peculiarity in the conformation of this fish is totally unnoticed, though it is partially represented in the woodcut. At about two-thirds of the entire length from the nose, in the direction of the lateral mark, begins a line of hard scale plates, at first very slightly projecting in the centre, but gradually rising, until they become a strong, serrated ridge, of which the teeth are sharp, and in depth perhaps about one-tenth of an inch. I quite coincide with the concluding sentence of Mr. Couch's account ('British Fishes', v. i. p. 131).

that the Spanish mackerel "is in no estimation as food."—*Arthur Hussey; Rottingdean, September 23, 1850.*

Note on British Crustacea.—As you seem interested in records of the occurrence of rare Crustacea on our coast, I may mention that the late Mr. Dixon, of Worthing, told me he had more than once seen the *Dromia* brought by fishermen to Worthing. The first record of its being met with as a British species is in the 'Zoological Journal,' vol. i. p. 419. "Zoological Club of the Linnean Society, June 22nd, 1824; The secretary exhibited two specimens of *Dromia mediterranea* of Leach, which were communicated to him by Mr. J. E. Gray, for the information of the Club. These specimens were found in Billingsgate market by that gentleman, among some oysters, which were stated to have come from Whitstable Bay, on the Essex coast." With reference to Crustacea, as I am on the subject, it may be worth recording that we have a specimen of *Squilla Desmarestii*, which there is every reason for believing to be British. The occurrence of Professor Bell's fine genus and species *Calocaris Macandrewæ*, off the Scottish coast, and of so large and fine a form as *Geryon tridens* of Kroyer, on the Norway coast, shows that large and remarkable species are still to be met with in the northern seas. While the dredgings of Mr. Thompson, of Belfast, those of Mr. Macandrew, and the published labours of Dr. Baird, Dr. Johnston, and Mr. Henry Goodsir among the more neglected orders, show that when attention has been attracted to them and notices and figures published, our Crustacean Fauna may be indefinitely extended. Professor Bell's work, when finished, will give quite a stimulus to the study, just as Dr. Baird's admirable volume on the Entomstraca (Ray Society) has done to these "minims for the microscope," and interesting fish-parasites. If our friends in Shetland and Scotland would exert themselves and visit fishermen's boats, some treasures already recorded as northern, by Kroyer, will assuredly be met with.—*Adam White; British Museum, September, 1850.*

Occurrence of the Larva of Acherontia Atropos at Stafford.—Last month I obtained two full-grown caterpillars of the death's-head moth from a potato-field, near the Stafford Railway Station: four others have since been taken in different places, close to the town. • I have not heard of its occurrence here since it was so abundant over the greater part of the country in the year 1846.—*Robert C. Douglas; Forebridge, Stafford, September 13, 1850.*

[I have records of the occurrence of this larva near Liverpool.—*E. N.*]

Occurrence of Deilephila Porcellus at Newmarket.—On the 13th of July, while staying in the neighbourhood of Newmarket, I captured a very fine male specimen of this rare moth, at rest upon a grassy bank, not far from the race-course. I also took several specimens of *Pamphila Comma*; then appearing in profusion.—*Robert Maris; Lynn Road, Wisbeach, September 16, 1850.*

Occurrence of Deilephila Euphorbia.—In reply to your inquiry (Zool. 2898) respecting the larva of *Deilephila Euphorbiæ*, I may state that I found it in a tuft of

grass near a bed of *Euphorbia Paralias*, and not far from a large quantity of *Euphorbia Portlandica*.—*C. S. Gregson*; 107, *St. James's Street, Liverpool, September 20, 1850.*

Economy of Zeuzera Arundinis.—This rare insect I have found rather abundant this year at Home Fen, near Yaxley, in Huntingdonshire: and as I was on the spot, sometimes day and night, for five weeks, and had good opportunity for observing the economy of this insect in its various changes, I can vouch for the accuracy of the following statements. The caterpillar feeds in the common reed (*Arundo Phragmites*), the perfect insect appearing in June; but all do not change simultaneously, some appearing at the beginning, others near the end of the month. When near changing the chrysalis becomes perceptibly restless, as remarked by one or two gentlemen in the August Number of the 'Zoologist:' they do not move in a spiral manner, but by a quick undulating motion of their elongated body. When about to change, the chrysalis works some distance up the reed till it arrives at a part not eaten out by the larva; there, with the head part of the chrysalis, they break through the outer skin of the reed and then crawl up to dry. When evening draws to a close the females are quickly joined by the males: the time of changing in most cases is from four to eight o'clock in the afternoon, or as the sun begins to decline: I have bred them and taken them on the fens just out at that time of day. Mr. Doubleday states that their time of changing is ten at night; this I cannot account for, unless they were affected by his keeping them in a different temperature. They remain in copula all the next day and until the following evening, that is if the black-headed bunting (*Emberiza Schachniclus*) permits them; for those birds, nesting as they do on reeds in large numbers, destroy the moths as soon as they make their appearance, the elongated body of the insect being well adapted to the swallow of the young birds. The female then takes her flight, flying near the ground, to select some reed on which to deposit her eggs, only one being deposited on a stem: I never found two larva in one reed. The egg is fixed end-ways by a strong glutinous excretion, it is of a pale yellow colour, long and cylindrical. When hatched, the head of the larva being placed near the reed, it finds no difficulty in eating through the soft green plant: they feed at the lower part beneath the ground on the pith: they feed upwards, by which means the chrysalis has free access to the whole length of the reed, and has but slight work to break through the upper or thin part of the reed. The perfect insect is very short lived, in no case exceeding eight or nine days. I expect they will not be found in this locality any longer, as it is intended to burn the reeds and bring the land into cultivation.—*H. J. Harding*; 1, *York Street, Shoreditch.*

[This insect appears to differ essentially from *Zeuzera* in the general habit, antennæ and neurulation of wings: entertaining a similar view, Duponchel has given it the generic name of *Macrogaster*, but as that appellation was previously applied to a genus of *Libellulidæ*, it cannot suitably stand, and I would venture to suggest that of *PHRAGMATÆCIA*, in allusion to its economy: a comparison of *Phragmatæcia Arundinis* with several *Nonagriæ* will disclose affinities which our systematic arrangements have not hitherto indicated.—*E. N.*]

Capture of Hydræcia Petasitis near Manchester.—I have succeeded in breeding *Hydræcia Petasitis* from larvæ taken from the roots of *Petasites vulgaris*: the perfect insect appears at the end of August and during September. I believe this is the first time the insect has been bred in this country. Now that its economy is known we must not allow this insect any longer to be regarded as rare: it is plentiful in the larva

state wherever its food grows abundantly.—*C. S. Gregson*; 107, *St. James Street, Liverpool*, September 20, 1850.

Occurrence of Hydracia Petasites at Weaverham, in Cheshire.—Having been informed by my friend, *C. S. Gregson, Esq.*, of Liverpool, that he had bred this insect from a larva found inside the root of *Petasites vulgaris*, I went down to the river Weaver, on the 7th inst., with a spade, and dug up about forty square yards of that plant, and had the pleasure of finding seven larvæ and three pupæ. The larva, when full-grown, leaves the root and forms an oval cell in the earth, without any web. The next day I found a fine female moth in my breeding-cage, which had come out of one of the pupæ. I shook some of the larvæ from amongst the roots, but three of them were feeding inside the root. I am convinced that but few can be obtained without a spade.—*Nicholas Cooke*; *Warrington*, September 10, 1850.

Capture of Lithomia Solidaginis at Cannock Chase, in Staffordshire.—During the last three days I have captured a large number of *Lithomia Solidaginis*. They were all sitting upon the trunks of some birch-trees, at the edge of Cannock Chase, almost a mile and a half from here; and in this position they so much resemble little coiled rolls of the outer bark of the tree, as easily to escape detection. I am not aware of any other recorded locality for this insect than the neighbourhood of Manchester.—*W. S. Atkinson*; *Rugeley Vicarage, Staffordshire*, August 22, 1850.

Occurrence of Fidonia Ericetaria near Farnham in Surrey.—Is it worth mentioning in a corner of the 'Zoologist,' that *Fidonia Ericetaria* is to be found in great abundance on the heaths at Farnham. I was unfortunately prevented during this season from devoting more than half an hour to it: but during that time I took upwards of fifty, and saw as many more. It appears about the 28th or 30th of July, together with *Argyrolepis Bentleyana*.—*P. H. Newnham*; *Meonstoke Rectory, Bishop's Waltham*, August 17, 1850.

[This species was abundant at Crooksbury Hill, near Farnham, when I was a boy—*E. N.*]

Capture of Rhodaria sanguinalis at New Brighton in Cheshire.—I took twenty-eight specimens of this beautiful insect at New Brighton by beating, but could not discover anything of its habits: I believe that it flies only at sun-rise from three to five o'clock A.M.: let it be looked for at that time.—*C. S. Gregson*; 107, *St. James Street, Liverpool*, September 20, 1850.

Capture of Rhodaria sanguinalis at New Brighton, and Hypenodius Hibernicalis in Delamere Forest.—Not having seen any record of the capture of *Rhodaria sanguinalis* and *Hypenodius Hibernicalis* in the pages of the 'Zoologist,' perhaps the following observations may be interesting to some of your readers. *Rhodaria sanguinalis* was first captured on the sand-hills, near New Brighton, by an amateur, on the 24th of June, 1849. On the 24th of June, 1850, the same gentleman, in company with a friend from this town, took about a dozen specimens (about seven o'clock, P.M.), the evening very fine. I visited the place a few days after in company with a friend, we reached the ground betwixt five and six o'clock, P.M., we could see none flying (the evening was windy and cloudy), but by raking the earth with a stick my companion succeeded in getting three specimens. Next day was still windy, with showers; by dint of raking we took ten specimens before twelve o'clock, at this time the wind fell and the sun broke out, and now for the first time we found a few flying. It would appear from what I observed and could gather from others, that they only fly under very favourable circumstances, and owing to their colour, it is very difficult to follow them

with the eye in bright sunshine; to these causes may be attributed the circumstance of the insect escaping notice so long, as the locality has long been a favourite resort of entomologists. *Hypenodes Hibernicalis* appears by its peculiar habits to have evaded detection here, and was discovered at last by mere chance, by a gentleman passing across the swamp at the time the insect was flying, its period of flight being from half-past six till a little after eight o'clock, P.M.; between those hours on a favourable evening they are plentiful, while previous to that time not one could be seen, nor was it possible to beat one out. Their numbers may be judged of from the fact, that the gentleman who discovered them and his companion, captured upwards of two hundred in one evening; and I and one of the same party took as many a few evenings afterwards: the locality is a narrow slip of swamp in Pettypool Wood, Delamere Forest. It appears to be a true swamp insect; moisture seems to be necessary to its existence. My companion had the whole of his first capture spoiled by having to walk ten miles next morning under a warm sun, and when he reached home he found them all dead and nearly battered to rags: indeed, when the insect is pinned quite fresh, and left to stand ten minutes without being set, the wings assume a shrivelled appearance. I have no doubt that by proper attention to time and place, this insect may be found in many parts of England; in which case *paludosa* or *palustris*, or any name having reference to swamp or marsh, would be more appropriate than *Hibernicalis*, the one proposed.—*James Cooper; Museum and Library, Warrington, September 11, 1850.*

[Mr. Cooper's objection to the name *Hibernicalis* will be met by Mr. Doubleday's paper in the Appendix to this number, where the insect is described under the name of *Hypenodes humidalis* (Zool. App. cv.).—*Edward Newman.*]

Capture of Micro-Lepidoptera.—

Eupacilia simplana?* I captured nearly thirty of this pretty species between May 22 and July 3, and August 10 and 14, but owing to the heavy rains, not more than six were tolerably fine. They fly for about half an hour just before dusk: sometimes hovering for a short time about the plant on which they purpose to alight, but never flying to any great distance. My usual method of proceeding was by gently disturbing them from the lower branches of willows on which they generally rested, and then netting them while on the wing. When flying they have a whitish appearance.

Anacamptis Cytisella. July 16, at Clevedon, Somersetshire, flying among fern, &c., three.

Elachista modestella. May 27 and 28, frequents whitethorn.

Elachista Regificella. August 13, two: distinguished from *E. magnificella* by being one-fourth larger, and having the wings much broader. The first band is also farther from the base, while the second does not extend more than two-thirds across the wing, which in *magnificella* reaches uninterruptedly from the inner margin to the costa. These unimportant characteristics seem to have escaped the observation of Messrs. Douglas and Weir. I possess a beautiful series.

Lithocolletis securiferella of Stainton. This is a variety common to all the species of which *L. pomifoliella* may serve as the type. I have met with it in *Pomonella*, *Salicicolella* and *Scopariella*, if Mr. Vaughan's *Ulicicolella* be this species.

Lithocolletis viminalis. April 22 to June 5, thirty specimens, among which were

* This species may be new.

two singularly beautiful varieties. It seems strange that I should not have seen a single example of the second brood this year, while last, I scarcely found any of the first. I took another species this season, but unfortunately only a single, and that a damaged specimen of it, having five spots on the costa: I should feel particularly obliged if any gentleman would tell me its name

Nepticula pulverella of Bentley? Expansion of wings about 2½ lines. Upper wings resembling *Trifurcula immundella*: lower wings ashy, with darker cilia. Obtained by sweeping grassy acclivities, Durdham Down, June 1, three.

Trifurcula pulverosella of Stainton? Allied to *T. immundella*, but larger, the upper wings extending to nearly 4 lines, and being of a sooty hue except at the apex, where the colour is luteous. Lower wings and cilia similar in colour. July 11, Leigh woods, Somersetshire, one.

Bryophila glandifera. July 8 to 12, ninety. Should any subscriber to the 'Zoologist' be in want of this species, I shall feel great pleasure in sending him some fine specimens.—*John Strcom; Brislington, September 9, 1850.*

On killing Lepidoptera.—Having seen in the 'Zoologist' (Zool. 2882, 2898) some new methods of killing Lepidoptera, I send you one that I have adopted for some years past. I first make a saturated solution of the cyanide of potassium, or about one drachm of the cyanide to one of water, in a stoppered bottle, I then take some filtering paper and dip it into a saturated solution of tartaric acid and dry it. When I have a moth under a glass, or in a box, I cut a small piece of paper about one inch square, if for a large moth, or less if for a small one, and immerse it half way in the solution of cyanide of potassium, then quickly pass the paper under the glass, when the moth will die almost instantly; though they will sometimes revive, if the glass be removed too soon. If not quite dead, dip a needle in the solution and pass it through the thorax at the insertion of the wings. The chemist will see that this is only another method of employing hydrocyanic or prussic acid, the tartaric acid decomposing the cyanide of potassium, by its superior affinity for its base, forming tartrate of potash and hydrocyanic acid; a portion of the water being separated into its elements at the same time, yielding oxygen to the potassium, forming potash; and hydrogen to the cyanogen, producing hydrocyanic acid, which is given off in vapour, there not being sufficient water in the paper to retain it in solution. The great advantage of the solution over the plain acid, which I am aware has been used before, is, that the hydrocyanic acid, sufficiently strong to kill insects quickly, will not keep three days, while the solution and paper will remain good six months at the least. Great care must be taken not to inhale the vapour when the glass is removed, as it is highly poisonous; the bottle should be labelled *poison*, for fear of accidents; the convenience of my process to a person travelling is very obvious, as the prepared paper may be bound into a small book, and a piece cut off when required; the bottle containing the solution may, when in a small wooden box, be carried in the pocket with perfect safety. The principal objection to the above method is, that it sometimes leaves the insect rigid, but I generally allow them to remain ten or twelve hours over water before I set them, when the muscles have time to relax; but if it is wished to set them immediately, take hold of the nervures of the under side of the wings with a small hooked needle, and draw them in the direction for setting, when the muscles will break or give way, frequently with an audible noise: the insect may then be set as usual. The collector should carry with him a few pill-boxes, and when he has captured an insect, put a small piece of the moistened paper in the box with it, and in

one or two minutes pass a pin through it and place it in the collecting box, to be set at his leisure. The plan generally adopted round here for killing Lepidoptera, is by pinching the thorax at the base of the wings: now I have seen the *Abraxas Grossulariata*, &c., struggling for days on the setting-boards, it being nearly impossible entirely to destroy the life of the insect by this method. Irrespective of the great cruelty of the affair, it is bad policy on the part of the collector, as the specimens are longer in drying, and of course must injure and displace themselves in their efforts to escape: now by my plan, I have killed *Smerinthus Populi* without its removing its antennæ from its state of rest: *Macroglossa Stellatarum* drops instantly to the bottom of the glass, perfectly motionless and dead. — *R. W. Hawkins; Upper Brook Street, Rugeley, Staffordshire, September 11, 1850.*

Capture of Apion Sedi at Southend.—When at Southend, about six weeks back, I met with this little insect in some plenty on the *Sedum* acre, taking about three dozen in an hour. We are indebted to the exertions of Mr. Dawson for the discovery of this species as a native of Britain, he having taken it at Deal two years back. I have no doubt it will be found in other localities on the coast if the *Sedum* be examined. — *Samuel Stevens; 24, Bloomsbury Street, August 28, 1850.*

Capture of Gnorimus variabilis at Tooting.—In the rotten and decayed oak-trees, the last week in July, on Tooting Common, in five visits, I met with eighteen or twenty specimens of this rare, or rather, local species, the habit is precisely similar to that of *nobilis*, which latter frequents apple and plum-trees, at Hammersmith and elsewhere.—*Id.*

Earwigs (Forficula auricularia) devouring Insects on setting-boards.—I am accustomed to place my drying-boards on the top of one of my book-cases, to protect them from injury. Some weeks since, I observed with much dismay, several insects deprived of their abdomen. I thought at first that they must have been knocked off: I placed the boards, therefore, in an upright position upon the chimney-piece to warn all people. In vain, day after day, the bodies disappeared, and the antennæ I found also broken off. At last, going in one evening about eleven o'clock, I discovered my enemy to be nothing less than earwigs; as I detected a large one in the very act of making his supper upon the abdomen of a fine *Polia advena*, the greater part of which he had already devoured. I have since, you may be sure, taken good care to preclude the possibility of such an event occurring again.—*Joseph Greene; Lower Guiting Vicarage, Gloucester, September 10, 1850.*

[The fact related of the larva of the puss-moth in the same communication, is no deviation from its ordinary economy.—*E. N.*]

Eggs of Arion ater.—In the last edition of Turton's 'Manual of British Land and Fresh-water Mollusca,' it is stated that this slug "deposits its bluish eggs in a cluster in May, at the roots of plants." Ten days ago, I found a gray variety of it, the edge of its foot being dull orange, lined with black, and after keeping it three days in a tin box with some damp moss, I found a cluster of white oval eggs attached to the roots of the moss and the lower part of the box. This slug was crawling in a pathway through a wood in the valley, near Charing, in Kent: in a wood on the top

of the chalk-hill close by, I fell in with two fine specimens of the brown or dark chocolate variety of this species, with the orange edge to the foot, feeding on the large brown Agaric which is common there. Can locality, as well as food, influence their colour?—*W. Thomson, Jun.*; 6, *Foxley Road, Kennington, August 26, 1850.*

Name and Affinities of the New Ophiocoma.—From the circumstance of the shields on the upper surface of the disk being more numerous, better marked, and more conspicuous than in the case of any other species of Ophiocoma,—judging from the woodcuts in the work already referred to,—and also of their being all of a round or circular form, the present species, on the supposition that it is really distinct, might perhaps be termed Ophiocoma parmularia. *Parmularius* means *one armed with, or, protected by, a parmula*. The *parmula* was a little buckler worn by a certain class of gladiators (Suetonius in Domitiani vitæ cap. 10mo.); the distinguishing character of which was a round or completely circular form. The present specimen was found adhering to a stone entangled among the roots of a coral-looking congeries of substances, which were fished up in the locality mentioned, at a depth of water of about five fathoms. This species of Ophiocoma is very closely allied to the Ophiocoma bellis, or daisy brittle star (Forbes's 'British Starfishes,' p. 53). From this latter, however, it differs in the following particulars: the rays are connected to the disk by a process altogether dissimilar, as will be seen by the drawing; and the disk itself is destitute of the cordiform depression, or indentation, so strongly marked in Ophiocoma bellis at the origin of each of the rays. There are, likewise, prominent distinctions in the arrangements of the granules, and in the form of the shields, or scales, on the upper portion of the disk. In Ophiocoma bellis, the granules form a distinct and conglomerated band all round the edge. They, moreover, occur in large and more detached patches on other parts of the surface. The scales, or shields, are less numerous and less uniform, not a few of them being of an angular and lengthened shape. In the present species, there are many of the shields which are encircled only by one line of granules, and which have exactly the appearance of an oval brooch, where the stone or jewel is set round by a single row of pearls. These shields are, also, found close to the edge of the disk, there being no band in this case, as there is in Ophiocoma bellis.—*James Smith; Manse of Monquhitter, Aberdeenshire, September 16, 1850.*

[The note was intended to form part of the article on the New British Ophiocoma (*App. cx.*), but that sheet had already gone to press: the proposed name is, however, inserted.—*E. N.*].

Note on the occurrence of the Medusa Stella at Lowestoft.—I have lately obtained from the harbour at Lowestoft (especially during the early part of the month of August) several specimens of a beautiful Medusa, which is figured and described under the name of Medusa Stella, in Sir J. G. Dalyell's interesting work on the 'Rare and Remarkable Animals of Scotland,' vol. i. p. 106; to which I must refer such of the readers of the 'Zoologist' as may not be already acquainted with this Medusa. My present object being simply to note a few particulars which may be worthy of record, on account of their not being noticed in detail in Sir J. G. Dalyell's

account of this animal. The size of the specimens which came under my notice, varied from an inch and a half to about ten inches in the diameter of the bell of the Medusa, at its lowest and broadest point. The external markings of the bell appeared to vary much in different individuals; in some they exactly corresponded with those represented in Sir J. G. Dalyell's plate; in others, especially the smallest specimens, these markings were entirely wanting, and the surface of the bell was simply sprinkled with numerous, minute brown spots; whilst in some other specimens, these minute spots were aggregated at the apex of the bell into a dense mass, which occupied the place of the ventral circle denoted in Sir J. G. Dalyell's plate, from which mass of spots radiated several bands composed of similar spots, but assuming the shape of a wedge, the sharp point being turned towards the apex of the bell, and the broad end being brought down to its base. The greater part of the specimens which I observed, were furnished with a fine filament attached to the lower extremity of each of the four frilled appendages which depend from the under surface of the animal. These filaments (which are not represented in Sir J. G. Dalyell's plate) were found, in some instances, to extend some feet in length. The tentacula, with which the circumference of the bell is fringed, vary much in length, not only as between different individuals, but also in the same individual at different times. This Medusa appears, in swimming, to progress with the apex of the bell somewhat thrown forward as the advancing point, a corresponding angle of incline being thus communicated to the remainder of the animal. Those which were observed swimming in the harbour at Lowestoft, appeared to have the power of advancing against the tide. This Medusa appears to be easily kept in salt water, if changed daily, and the constant contraction and dilatation of the bell (which is, I believe, a motion common to all the campanulate Medusæ), combined with the singular form of the animal, and its agreeable colouring, characterized by rich brown markings on a pellucid white ground, render it an attractive object for observation, and one which, till the present summer, was new to me, as it may perhaps be to some other readers of the '*Zoologist*.'—J. H. Gurney; *Easton, near Norwich, September 2, 1850.*

Proceedings of the Zoological Society.

Monthly General Meeting, September 5.—T. CHARLES HARRISON, Esq., F.R.S., in the chair.

Viscount Newport, M.P., Sir Cornwallis Bicketts, Bt., Henry Wordsworth, Esq., and George Ransome, Esq., were elected Fellows of the Society. J. S. Gaskoin, Esq., and R. Hartley Kennedy, Esq., were proposed as candidates for the Fellowship.

The Report of the Council stated that the number of visitors to the Gardens in August, was 54,564, being an increase over August, 1849, of 27,892; and that the number of visitors since the arrival of the hippopotamus (a period of only fourteen weeks) has been 226,988.

Proceedings of the Entomological Society.

September 2, 1850.—J. F. STEPHENS, Esq., V. P., in the chair.

The following donations were announced, and thanks ordered to be given to the donors: the 'Zoologist' for August and September; by the Editor. The 'Transactions of the Royal Society, 1848,' parts 1 and 2; 1849, parts 1 and 2; 1850, part 1; List of Members, 1849, and Proceedings, No. 70 to 74; by the Royal Society. 'Entomologische Zeitung,' for June and July; by the Entomological Society of Stettin. 'Bulletin de la Société Imperiale des Naturalistes de Moscou,' 1847, Nos. 3 and 4; 1848, Nos. 1 to 4; 1849, Nos. 1 to 3. 'Specimen Faunæ Subterraneæ;' by J. C. Schiödte, Copenhagen, 1849; and 'Om en afvigende Slægt af Spindlernes Orden,' by J. C. Schiödte; both presented by the author. A figure of *Epunda Lichenea* and its larva, drawn and presented by Mr. C. S. Gregson. 'A Letter to Lord Brougham on the Scientific Exploration of Egypt and Ethiopia,' by John James Wild, Civil Engineer of Zurich; by the author. Specimens, male and female, of *Raphiglossa Eumenoides* and *R. Odyneroides*, and a male of *Myrmosa conspicua*; by S. S. Saunders, Esq. These insects were described in a memoir read on the 3rd of July last.

Mr. Shepherd exhibited specimens of *Rhodaria sanguinalis* taken at New Brighton, by Mr. C. S. Gregson; also some black varieties of *Elachista Linneella*, taken near London.

Mr. S. Stevens exhibited a male and female of a beautiful variety of *Ornithoptera Priamus* from Richmond River, New Holland; specimens of *Amphiwalla verna*, *Meg.*? found by Captain Parry at Tenby, and of *Rhagium indagator*, *Callidium striatum*, *Cetonia ænea* and *Pytho depressus*, taken by Mr. Weaver in the Black Forest, Perthshire.

Mr. Douglas exhibited—

Odontia dentalis, found on *Echium vulgare* at Folkstone, in July.

Röslerstammia granitella, *Xanthosetia inopiana*, *Eupæcilia udana*? and *Sericoris fuligana*, *Haw.*, found on *Inula dysenterica*, also at Folkstone, in July.

Adela Dumerillella? *Tinea angusticostella*, *Pterophorus baliodactylus*, *Gelechia* —? and *Argyresthia Sorbiella* on *Pyrus Sorbus* (Service), at Mickleham, in July.

Penthina —? in June, and *Gelechia peliella*, in August, at West Wickham.

Depressaria atomella, and *Catoptria* —? in August, at Charlton Sandpit.

Gelechia Inulella, *Curtiz*, and *G. bifractella*, *Mann*, bred in July and August from seed-heads of *Inula dysenterica*.

Gelechia, n. s., bred in August, from seed-heads of *Carlina vulgaris*.

Gelechia, n. s., bred in August, from leaves of *Cirsium lanceolatum*, in which the larva mines, feeding on the parenchyma only.

Pterophorus lithodactylus, bred from leaves of *Inula dysenterica*.

Mr. Westwood stated that in July, *Lymexylon navale* appeared from the oak-timber in Plymouth Dockyard in thousands, and he had learned that they did not continue in the perfect state longer than a fortnight, a circumstance he thought worthy of note, as if availed of, their destruction might be more easily accomplished. The experiment of placing the timber in the steam-tank for ten hours had been tried, and found perfectly effectual in destroying the larvæ. He was likewise informed that the timber affected was quite sound when received four years since. Mr. Westwood

also stated that he had received specimens of *Apathe Capucina*, a beetle that had done considerable damage in the same dockyard to oak timber received from Isturia. Adverting to the case-making Lepidopterous larvæ from pear-trees in the Horticultural Society's Garden, exhibited at the meeting on the 3rd of June, Mr. Westwood said they proved to be of two kinds, one having produced *Coleophora nigricella*, and the other *C. Hemerobiella*.

Mr. White read the following note on the boring powers of *Monohammus Sutor*:—

Messrs. Kirby and Spence in their world-read Introduction, record a striking instance of the boring powers of another beetle of the Longicorn group, the *Callidium bajulum*. Sir Joseph Banks gave to these gentlemen a piece of a sheet of lead, which, though only eight inches long and four broad, was pierced with twelve oval holes, of some of which the longest diameter is a quarter of an inch.

In every case recorded, the lead has been over wood in which the larva or pupa of the insect has been enclosed, and as insects in their unerring instinct generally "go forward," the *imago* to get out to fulfil the object of its existence gnaws through anything in the way, that can be reduced by its jaws.

My friend Mr. Ainger lately had occasion to get a pipe repaired which had been damaged by an insect; the culprit is the *Monohammus Sutor*, and as Mr. Ainger describes the circumstances well, I add his letter.

"Dear Sir,—I send you the creature which perforated my leaden pipe, and the enclosed sketch will explain the position of the pipe in reference to the round hole in the timber, where the animal was found, and from which it must have been trying to escape, when the pipe stopped its progress. The hole in the pipe had very much the appearance of a screw-hole in a common iron hinge, with the dishing or countersinking formed to receive the head of the screw. This countersinking was not uniform, being on one side oblique, and on the other nearly vertical to the surface of the pipe; the difference was evidently produced by the obliquity of the line of progress, and by the fact of the animal's working in something like a hemisphere, of which that line was the axis. I can give no indication of the time occupied except this; that the pipe was subjected to a high-service pressure seventy-two hours, before the water burst through the aperture in question. The creature when found was not quite dead, but very inanimate, having been exposed to a violent jet of water for above half-an-hour. I am, dear Sir, yours truly, ALFRED AINGER."

"What surprises me is, that these round holes in the timber are not more common. The coincidence of finding a leaden pipe at the surface of the timber may easily be very rare; but I never before saw such a hole formed in wood, and I suppose the animal is not uncommon?"

Mr. White, on the part of Mrs. Hamilton, exhibited a small but most interesting collection of insects of India, including the beetle referred to in her letter, read July 1, and a specimen of the butterfly *Danais Daos*.

He also exhibited a drawing by Mrs. Hamilton, of this butterfly, its larva and pupa, which, besides being highly flattering to that lady as an evidence of her skill in observing and delineating, was especially interesting as determining the relations of the species, and showing that Mr. E. Doubleday, with his usual accuracy, was correct in considering it to belong to the genus *Danais* rather than *Hestia*, with which it had been associated.

J. W. D.

*Extract from the Correspondence of Mr. H. W. Bates, now forming
Entomological Collections in South America.*

(Continued from page 2841).

“ Barra de Rio Negro, Parà,
March 22, 1850.

“ After a long and tedious voyage I arrived at this place on the 23d of January, and the present collection of five boxes of insects is all I have done (with the exception of a few birds not worth sending) since I left Parà, on the 6th of September. I was altogether unfortunate in the voyage, chiefly owing to the delays of the canoes in this lazy country, and have thus missed the right seasons for collecting. The dry season is the only time here when much can be done in Lepidoptera: now, I was delayed three weeks of the best weather at Parà before starting, and on the voyage eighteen days at Cametá; if I had known of these delays I would have engaged a passage in another canoe at first: on account of these delays I stopped at Obydos, half-way to Rio Negro, instead of going on straight to Barra, to profit by the remainder of the fine weather: I was there from the 11th of October to the 19th of November, and collected nearly the whole of the present collection except Coleoptera; the rainy season set in at the beginning of November and continued showery till January. I took a passage to Barrà, wishing to arrive before the heavy rains began, but was delayed again miserably on the voyage, from the 19th of November to the 23d of January, arriving here too late to do anything either in birds or insects. I have now resolved to stay for the next season, and have agreed with Mr. Wallace to take the Solimoens, leaving the Rio Negro to him; in a few days, therefore, I expect to sail for Ega, according to description, a desirable station. Mr. W. I believe is waiting for an opportunity to go to San Gabriel, on Rio Negro. Between Obydos and here I collected a good deal on the road when I took most of the small Coleoptera; we stopped at nine different places and had twenty days' hunting on shore; viz., at the sandy beaches of Maraca-uassa, the rocky hills of Parentins, Villa Nova (which would have been a splendid locality for Diurnes if the weather had been fine), Barrier of Cararauçu, Serpa, Mouth of Madeira, &c.; here, at Barrà, during the few hours of sunshine I go into the woods, but see rarely anything but common Parà species: on

the voyage here, along the banks of the Amazons, the common run of Diurnes differed from those of Pará. The Heliconias change most, the common species at Obydos differing from those of Pará; and again at Serpa the prevailing species differ from those of Obydos. The Papi-lios, Theclæ and Hesperix do not differ much from those of Pará; but in Erycinidæ numbers of new species are to be seen: the result of insect collecting here has shown me that the species are not sufficiently different from those of Pará to make my voyage remunerative, or to occupy all my time. My plan is to proceed to Ega, engage hunters with the blow-pipe, and see whether I cannot procure five hundred or a thousand bird-skins, besides getting all the entomological novelties of the district. Circumstances are now favorable for a naturalist to explore well the country. There are two gentlemen (Messrs. Bradley and Williams) trading from Pará to the frontiers of Peru, who make a voyage every year, and can convey collections or cash orders. The Indians are at present peaceable (which is only the case when there are no political disturbances in the capital), and the authorities are friendly. The voyage from Pará to Ega in the fine season occupies two months. I have now got blow-pipes and poisoned arrows, and shall soon be a dead shot: I expect this is a capital way of killing birds for specimens. Ammunition is cheap; specimens are perfect; at present there are no shells, the country being unfavourable for them. From Pará to Barra there is a great uniformity in the country. Henceforward, either way, we may expect to meet with greater variety and novelty."

"Ega, Upper Amazons, June 14, 1850.

"I embarked at Barra on the 26th of March, at 8 o'clock p.m., on board a small river vessel, called a coberta, belonging to a merchant of Ega, whose acquaintance I made in Barra. I bade adieu to my countrymen in Barra with regret, as we had spent many pleasant weeks together, and immediately after the Indians weighed anchor, working all night at the oars, so that by daylight in the morning we were out of the Negro, and within the river Solunócus, or Upper Amazons. The difference is very great between the Rio Negro, or Black River, and the Solunócus; one is a quiet river, broad, and placid as a lake, with clear, black waters and sombre forests; the other, a turbulent, muddy stream, carrying along in its roaring current a procession of

fragments of the forest, which it tears away in its course. The forest is of a more luxuriant character than the Rio Negro, and of a livelier green, but melancholy from the appearance of its banks. The first four days we had a little wind, with which we spread sail, and made a little progress; from thence we had no more wind for upwards of twenty days, and our only mode of progression was by warping, which is in this fashion: two Indians go ahead in a boat, with a long, strong rope, which they tie to a tree-stump on the bank of the river, and then return and give the other end to those on board, who pull along till the canoe arrives at the spot where it is secured; the rope is then gathered in, and the same process repeated. Of course a voyage thus made becomes intolerably wearisome. Besides this, it was now the height of the rainy season: some days and nights the rain came down in torrents, pouring in upon us as we slept in our close little cabin; and in the day, when the sun came out, the heat was terrible, having all the force of the equatorial sun, without the cool winds which temper the heat down the river; add to this, swarms of three kinds of insect pests, two by day and one by night. By day we had a little fly called piung, which appears in swarms, seeking the bare hands and feet, with a thirst of blood insatiable, which it sucks without making an incision, leaving a minute, round, red spot, with itching and inflammation. Some constitutions suffer greatly from this pest, the feet swelling and causing lameness. Fortunately I suffered nothing except the itching, and when I arrived at Ega had my hands and feet covered with myriads of black spots. The other day pest is a small species of *Tabanus*, allied to the English horse-fly (*Hæmatopota fluvialis*), which causes a pain like the prick of a hot needle, and leaves a wound, whence the blood, inflamed by the intense heat, oozes out in profusion. The night torment is the mosquito, which, soon as the day closes and one expects a little repose, descends in swarms from the forest: fortunately the mosquito does not always appear, and in the wet weather we were most nights free from it. To add to our sufferings, hunger and bad food. I embarked good provisions, which were soon finished, being divided with the Indians, and afterwards we had nothing but rotten mandioca, and when no fresh fish, semiputrid salt ditto. The morning of the 27th I had the pleasure of seeing the splendid vessel of Senor Henriqua, of Barra, cross the mouth of Solunocus, with all sails set, descending the river for Parà, with my collections and letters for home on board. On the fourth and fifth days of our voyage we passed several houses of settlers, called manacapuru: from thence to Ega we were thirty days without seeing any human habitation.

The voyage altogether occupied thirty-five days, arriving at Ega on the 1st of May. This is a pretty spot. Passing along the broad river of Amazons, we entered a narrow channel, through which flows my favorite black water, promising exemption from insect pests, and pursued our course about ten miles, when suddenly the narrow channel expanded into an immense lake, five miles broad and a hundred long! Round a point of land, and at the mouth of a creek, reposes the quiet town, containing three or four hundred houses, each with its garden, surrounded by high palings, and, as it were, seated on a green meadow. All the streets are grassy, where cattle and sheep graze, and behind rises high, swelling ground, with the same emerald carpet, the background of all being the edge of the eternal forest. I lived with the owner of the canoe for four days, when I procured a small house and a servant. I brought good letters to the chief magistrate, who is now my best friend. In insects and birds the locality is rich. Of the handsome butterflies, that fetch a high price in Europe, I have already taken forty-five new species. In birds I work more slowly, having chiefly to depend on hunters, who only go out once a week or fortnight. Meantime my expenses are trifling. I pay two thousand rios a month for rent, which is one shilling a week in English money. The Indian youth I pay about one shilling and ninepence a week. Beef, when there is any, is three-halfpence a pound; large fish fourpence or sixpence each; turtle, in the season, three feet long, eightpence; a huge bunch of bananas, containing about a hundred fruit, the size of a cucumber, a very necessary food, twopence or threepence, but generally given for nothing, like oranges, which they send me in great baskets, delicious oranges! for presents. The great necessary of life here, farinha of mandioca, is very cheap; a great basket full, equal to six stone of flour, is two shillings and twopence; but I generally get it for nothing, which is cheaper still! Bread there is none, and clothing is dearer by a hundred per cent. than at Pará. There are very few whites or blacks here, the population consisting chiefly of Indians, indolent and peaceable: they are of many different nations, some of which may be known by the mode in which they paint their faces, as Juris, Pashès, Tucunas, Miranhas, Cucamas, &c. All here speak the Indian language, which I am learning, and all, more or less, use the blow-pipe instead of guns: this is a most deadly instrument, having a tube seven to ten feet long, with arrows sharp as needles, one foot long, dipped in poison; of course it makes no noise. I can use it easily enough now, and could kill an ox at fifty paces. In fact, this is a peculiar country, and completely retired from the world. In

this season it takes five months' voyage from Parà to here, and in the fine season seldom less than ten weeks."

H. W. BATES.

Notes on Observations in Natural History during a Tour in Norway.

By the Rev. ALFRED CHARLES SMITH, M.A.

As I have passed the three summer months of this year (June, July and August) in Norway, and the greater part of that time was devoted to my favorite pursuit, the observation of birds and other branches of the animal kingdom, it may be interesting to some of the readers of the 'Zoologist' if I transcribe a few extracts from my journal relating to such birds as are of rare occurrence in this country, and also to the general Natural History of Norway; first premising that the following extracts were jotted down in my journal-book at odd times, as opportunity arose; that they pretend to no elegance of diction, and contain no new theories of my own; but state merely such plain observations as I made, and such plain facts as came under my notice, during my wanderings in the mighty forests, fjelds and fjords of that most magnificent country.

The Capercaillie (*Tetrao Urogallus*) claims the first notice, as he is the great pride of the Norwegian forests. The male is called by the natives 'tiur,' the female (which they also call his 'kune' or wife) 'röi.' They inhabit the thickest parts of the forests, and difficult indeed is the ground which the sportsman has to traverse in pursuit of them: generally amongst fallen trees and huge masses of rock, and up-torn trunks and tangled brushwood, the capercaillie loves to dwell. The old cock is a wary and cunning bird, and it is almost impossible to get him up by means of beaters and dogs. Like the old black cock, but in proportion to his size still more wary, and as if knowing that his great bulk, as it presents a larger mark for the sportsman, so is more difficult to escape notice among the trees, he will run in advance of you through the forest till he is far beyond your reach. Norwegian and Swedish sportsmen are so well aware of this, that they never attempt to pursue them in this fair, open manner, but take them by another method, which appears very strange and unsportsmanlike to an Englishman. Having previously discovered a good locality for capercaillies, the sportsman goes out at night, and lies in wait in the forest till early dawn, near the spot where he expects to find his game. At this time the capercaillies, perched on the top of a pine-tree, will

utter a harsh, grating noise, called by the Norwegians "singing," which may be heard at a considerable distance: they are now so taken up with their own mellifluous voices, that they have no ears or eyes for anything else. Seizing the moment when this "singing" begins, up starts the sportsman from his concealment, and darts towards the sound as quickly as possible; but in about five and thirty seconds the singing is over, and the bird recovers the use of its hearing and sight. The instant the sound of its voice ceases, the sportsman stops quite still, wherever he may be: whether in water, in a bog, half over a huge rock, or bending under a fallen tree, he *must* stand perfectly still till the singing once more begins, which it is sure to do in a few minutes. The instant the singing is heard again, away goes the sportsman as before, and approaches nearer his victim, and again stands still at the finale of the strain. Thus he proceeds through the forest, till at length he gains the foot of the tree where the bird is perched, and then, while the poor unconscious fowl is delighting itself with music, a cool, steady shot from below brings him down with a tremendous bounce, and the sportsman's bag is at once filled, for the bird is as large as a turkey. In any other country but Norway (where an Englishman is constantly hungry, and generally half starved, from the difficulty of procuring any eatable food) I should say that the capercailzie was a very inferior bird for the table; the meat is too coarse and dry, and scarcely resembles the meat of any bird I know: the brown meat on the breast (for like its congener, the blackcock, it has two different meats there) is more like beef than anything else. The food of the capercailzie consists principally of the berries and leaves of a great variety of dwarf shrubs which abound in Norwegian forests. I opened the crops of several, and invariably found them filled with the blue and red berries so well known in these forests; the berries and leaves were always whole, and the crops generally stuffed quite full. In the crop of one bird I counted above a hundred berries, and above three hundred leaves. Norwegian sportsmen have told me that they feed on the leaves of the Scotch fir; I never found one in the crops of those I examined, but perhaps that constitutes their food in the winter, when the berries and their leaves are gone, and the bushes are hidden in snow.

Great Black Woodpecker (*Picus martius*). While driving through the immense forest of the Glommen, through which our road lay for a hundred and fifty miles, and which stretched on either hand over the mountains for some thirty or forty miles, the stillness for which these Norwegian forests are so remarkable was suddenly broken by

the hoarse and loud laugh of some strange bird. In an instant I had leaped from my carriage, and seizing my gun (which always swung loaded at my side), with an admonitory 'pur 'r 'r 'r' to my horse, which in the Norsk language signifies 'stand still,' and which he always understood and generally obeyed, I soon dashed into the forest in pursuit of this bird with the unknown voice. I had not advanced far before the same sound broke upon me again, and this time a very little way off. This was immediately followed by a loud tapping, and a few steps more brought to my delighted eyes a great black woodpecker, with his blood-red head, gradually ascending the bole of a fir. I watched him for some time, as, with his strong, bristly tail firmly placed against the tree, and his feet clinging to the bark, he hammered away most audibly with his large, powerful beak. As it was impossible from the lack of underwood to get nearer him unobserved, I fired from a long distance, and the only result, to my great disappointment, was to scatter the ground with the black feathers of his back, and to send him screaming through the forest. I was soon wading through bog, mud and water in pursuit. Several times I caught a glimpse of him and another (probably his mate) as they flew before me among the trees. At length I saw one of them fly to the trunk of a fir, and now by a little manœuvring I approached him unobserved, and this time he did not escape me. I never saw birds fly more heavily, or with such apparent labour and such clumsy motion, as these great black woodpeckers. In skinning this bird, I was surprised to find the head so large that it was quite impossible to pass it through the neck after the ordinary manner, and I was obliged to make an incision in the skin at the back of the neck, as is done with owls, &c. I have never found the same difficulty with the green woodpecker (*Picus viridis*) or the great spotted woodpecker (*Picus major*), both of which I have stuffed.

Lesser Spotted Woodpecker (*Picus minor*). This bird has never come under my observation but once, and that too was in the forest of the Glommen, so favorable for birds generally, and especially for shy, solitary and retiring birds, as woodpeckers are known to be. This pretty little woodpecker flew across the road, just in front of my carriage, in a tolerably open part of the forest. Of course I was soon in pursuit with my gun, and I caught sight of him as he was tapping the topmost branch of a half-decayed fir: alas! he too caught sight of me, and away he went among the trees, and though I searched most diligently for some time, I could not find him again.

Egg of the Fieldfare (*Turdus pilaris*). By the time I reached Norway (the beginning of June) the season was too far advanced to

give me much hope of obtaining any rare eggs. One of the few nests which I was fortunate enough to find with eggs was that of the fieldfare: it was within three or four days of my landing in the country, and I was wandering with my gun on a small island, in the midst of a roaring torrent, and admiring the activity of some little wild ducks just hatched, which were swimming merrily about with their anxious mother, who did not seem to approve of my inquisitiveness; when the loud chattering of some fieldfares attracted me to a clump of trees in the middle of the island. After a very little search, I descried the nest, about twenty-six feet from the ground, in an alder-tree. I soon climbed the tree, and brought down the nest, which contained five eggs. The nest resembled that of a blackbird in every respect (for I pulled it to pieces, and examined its make thoroughly), only it was considerably larger, and much neater made; it was also extremely thick, and very securely fixed in the fork of a tree. This I found to be invariably the case with these nests, for I examined many others afterwards, though I was never again fortunate enough to find any eggs. Those which I now obtained were very difficult to empty of their contents, as the young birds were nearly ready for hatching; however, by making a large hole on one side of the egg I succeeded pretty well, and they are now safely housed in my cabinet, with no damage from the two thousand miles of shaking they have undergone in a carriage without springs, on some of the worst roads in Europe. The eggs in colour, size and shape very much resemble those of the blackbird. I have been comparing them, by placing them side by side, and I find the ground colour of the fieldfare somewhat greener, and the markings somewhat redder, the latter amounting rather to blotches and spots than specks and streaks; the shape of the fieldfare's egg too is a trifle rounder than that of the blackbird, in this respect more nearly resembling that of the song thrush. Comparing it with my own specimens, the figure in Mr. Hewitson's admirable work is much too red, the ground colour being not sufficiently apparent, and the spots of red being far too numerous, and of too light a colour: but the eggs of this genus vary so much, that perhaps the figure there given may be as correct a type of the sort as my own: I would remark, however, that the specimens of this egg in the Museums of Christiania and Trondhjem are identical in colour with my own, and that they approach far nearer to the figure Mr. Hewitson gives of the egg of the redwing than to that of the fieldfare. I climbed many other trees to inspect the nests of the fieldfares, and found many with young

birds. I was much struck by the parental love and undaunted boldness of the old birds, who would fly round and round, and dart at me within a few inches of my hat, screaming and chattering as loudly as they could, so very different from the wild, unapproachable bird which so often baffles the schoolboy in the winter. Fieldfares are certainly the most numerous birds in Norway, and we may hear them chattering and clamouring from every cluster of low trees and bushes in the vicinity of a torrent. I have noticed that they usually build in the neighbourhood of a stream, and always in society. Mr. Hewitson says that the number of nests in one colony sometimes amounts to upwards of two hundred. I have never seen above eight or nine nests together.

Egg of the Redwing (*Turdus iliacus*). Nothing that relates to Natural History has surprised me more than the doubts concerning the egg of this bird. In looking over the past volumes of the 'Zoologist,' just before starting for Norway, I happened to hit upon a communication (Zool. 2141) referring to the existing doubts as to the colour of this egg, in which your correspondent asks for information, but (as far as I can find) has never met with a reply in the pages of the 'Zoologist.' In my presumption I immediately resolved to clear up the difficulty, by procuring some undoubted specimens of this egg in Norway, should I be too late to find any myself, never for an instant hesitating as to the possibility of doing so, though I own I should have been staggered by the failure of Mr. Hewitson. I grieve to say that, though I made every possible attempt, I have returned not a whit the wiser as regards the egg of the redwing. Though I constantly saw and listened to the bird, and though I searched in places which I considered most likely with great perseverance, I never found a nest with eggs or young. Nor were my efforts confined to personal investigation: at both the Museums of Trondhjem and Christiania I made special application to the Professors of Natural History regarding it, particularly at the latter, where the Professor is a very scientific as well as most obliging man. In neither museum was the egg of the redwing to be found, though in both there was a collection of eggs, and the Professor at Trondhjem, as well as the Professor and his assistant at Christiania, owned they were not acquainted with its colour. I trust some more fortunate naturalist than myself will be able to discover the egg, and communicate the result of his discovery in the 'Zoologist,' or I shall begin to look upon the redwings as mysterious birds, and somewhat versed in magic, if they can

contrive, numerous as they are, to elude the researches of naturalists with reference to their nests and eggs.

ALFRED CHARLES SMITH.

Old Park, October 11, 1850.

The Birds of Melbourne. By J. J. BRIGGS, Esq.

(Concluded from page 2611).

Common Sheldrake (*Anas Tadorna*). In Melbourne Gardens are some tame sheldrakes, a pair of which, a few summers ago, burrowed a hole into the ground amongst the shrubs, and bred.

Pintail Duck (*Anas acuta*). Occasionally comes to the Trent.

Wild Duck (*Anas boschas*). Many pairs breed annually amongst the willows and sedge which skirt the outlets of the Trent, and remain throughout the year. They issue forth towards evening to feed on the Trent, and return a little before sunrise.

Teal (*Anas crecca*). Teals are chance visitors. A single bird will come upon the Trent, and if unmolested remain for several weeks and then depart. When they first appear they are tame and not difficult to kill, but afterwards become more wild and wary. I have seen them so early as the end of August.

Wigeon (*Anas Penelope*). Arrive later than teal, seldom before the middle of September, and often in pairs. They prefer the rushy parts of the river.

Pochard (*Anas ferina*). Seen during most winters.

Longtailed Duck (*Anas glacialis*). Comes in hard winters to the Trent.

Harlequin Duck (*Ans histrionica*). On the pool in Melbourne Gardens are a pair of these beautiful fowls, which add much to the many attractions of the place. Although they have been kept there for several years they never bred until the year 1849, and as this is, I believe, one of the very few instances of the bird breeding in this country, it may be interesting to give some account of it. In the grounds above mentioned, at a very considerable distance from the pool where the birds usually live, and in a retired part, stands an ice-house, against which some thatch-sheaves were placed: upon these, sheltered from the wet and sun, and at an altitude of about three feet, the pair formed a nest which was simply a depression in the thatch, made most beautifully soft and warm, by being lined with down

plucked from the parent bird. The nest contained eight eggs on June 11, which were hatched a few days afterwards. They were very similar in colour to those of the partridge, but somewhat larger, and when the bird left them to feed, she covered them up closely with a large lump of down. After feeding, the male bird accompanied her back to the nest and then returned to the pool, not taking any share in sitting on the eggs. Several of the young ducks were reared, but the old female died.

Golden Eye (*Anas clangula*). March 9, 1848, two shot off the Trent; but are very rare.

Goosander (*Mergus merganser*). On December 17, 1844, a goosander took up its abode on the Trent, and staid some weeks. It was not shy, and when fired at with a gun, merely dived below the surface of the stream and reappeared after a few seconds. When observed unmolested, its manners were pleasing and amusing as it swam leisurely on the water, pecking and pruning its plumage or occasionally dipped underneath. The Trent was partly covered with ice, and it would disappear near the edge of a large piece, and after diving under it perhaps for fifty yards, again come upon the surface. Several individuals have been shot off the river.

Little Grebe (*Podiceps minor*). They are most frequently seen when floods occur on the Trent, but I think that they remain here throughout all the wintry portion of the year. It appears to me that during low water the birds secrete themselves under cover of weeds, but when floods come on the river the creeks are flushed also, until the waters cover the weeds, and then the little bird has less opportunity of hiding itself and is oftener seen.

Great Northern Diver (*Colymbus glacialis*). Sometimes shot off the Trent.

Redthroated Diver (*Colymbus septentrionalis*). One killed, January 31, 1848, during the most severe weather that occurred that season.

Sandwich Tern (*Sterna Boysii*). Visit us occasionally, often in spring and during stormy weather.

Common Tern (*Sterna hirundo*). One shot, May 25, 1845. The bird was flying at a great height.

Kittiwake Gull (*Larus tridactylus*). One picked up alive near here, March 30, 1846, probably on its way to its summer breeding-grounds (the coasts of Durham, Northumberland or Scotland), but unable to reach them from exhaustion.

Common Gull (*Larus canus*). Occurs occasionally.

Herring Gull (*Larus fuscus*). Parties come sometimes to the Trent and stay a few days, during which time they keep constantly flying low over the surface of the stream, but I have never observed them capture fish as at sea.

Fulmar Petrel (*Procellaria glacialis*). One killed, October 25, 1847, on some arable land near Melbourne Pool. It first alighted on an island in the middle of the water.

Storm Petrel (*Procellaria pelagica*). Has been shot, but not recently.

JOHN JOSEPH BRIGGS.

King's Newton, Melbourne, Derbyshire.

Unnecessary destruction of rare Birds.—I beg leave to join in Mr. Willmot's humane and excellent remonstrance against the unnecessary destruction of rare birds (Zool. 2178). Ought not every true ornithologist to wish for the increase and multiplication of those species which are rarely met with, in the hope that they may extend themselves, and afford pleasure and gratification to some brother-ornithologist in a different part of the kingdom? For my part I am always loath to shoot a rare bird, unless it should happen to be unknown to me, and would much rather examine it, or watch its habits, if practicable, by the aid of a telescope.—Archibald Jerdon; *Mossburnford*, August 9, 1850.

On the unnecessary destruction of rare Birds.—I have recently read with much satisfaction the remarks of Mr. J. P. Willmot (Zool. 2878) on the unnecessary destruction of rare birds, having myself also for a long time regretted to notice the frequent announcements (as if a meritorious feat had been performed) of the disappointment of attempts apparently made by feathered visitants from foreign countries to naturalize themselves among us. In addition to the two instances specified by Mr. Willmot, I would refer to the wholesale slaughter of waxwings in various parts of our island, recorded in the 'Zoologist' for April last, of which the statements occupy more than three pages, namely, from 2766 to 2770. In like manner, whenever a hoopoe is observed (which appears to be no very unusual occurrence) it is eagerly pursued, and should it fortunately escape death on its first arrival upon our shores, there is small probability that it will be permitted to accomplish its purpose of breeding here, and readers of the 'Zoologist' may recollect several accounts of such captures. Not only have different causes effected a very sensible diminution of our indigenous birds, even to the total, or nearly total, extinction of some kinds, but that diminution is, to a certainty, still in progress. It seems, therefore, far more becoming in students of Natural History to endeavour to supply our unavoidable losses by the introduction of new races, rather than remorselessly and wantonly to wage war against all strangers which throw themselves upon our hospitality. I am not without hope of influencing some who may peruse these lines, by reminding them of higher considerations. The Almighty Creator has indeed granted to man the dominion over all other animals, but in order that he may *use*, not that he should *abuse*, them; and I would ask those whom the above remarks may concern, whether they have meditated on the meaning and application of St. Matthew, x. 29?—"Are not two sparrows sold for a farthing? and one of them shall not fall on the ground without your Father." Compare also the

parallel passage, St. Luke, xii. 6. For such reasons, then, I gladly join in earnestly intreating all lovers of nature henceforward not to practise or encourage the indiscriminate and unnecessary destruction of our rare feathered visitors, but on the contrary to use their best exertions to protect them; and possibly the result may be, that hereafter such birds as the golden oriole, the waxwing, and the hoopoe, now aliens (and treated as the bitterest enemies), may become denizens of the shrubberies, orchards and woods of England, a consummation, it will surely be acknowledged, devoutly to be wished.—*Arthur Hussey; Rottingdean, August 30, 1850.*

On the Cruelty of Swallow Shooting.—I am anxious, through the pages of the 'Zoologist,' to say a few words in reprobation of that wanton and barbarous amusement of swallow shooting, which is followed by some sportsmen (?) during the summer months. The destruction of these useful and very interesting birds answers no one good purpose, and can only be looked upon in the light of wanton barbarity. It has not even the excuse of being a good practice for other kinds of shooting, as a good shot at a swallow may be a very bad one at game. By simply waiting until the bird takes its turn in the air, at which time it is poised on its wings and almost motionless (this is more particularly the habit of the martin), it requires no more art than is required to shoot a sparrow from a house-top. It ought to be remembered by these destroyers, that the cruelty is much increased by the fact that at this period the swallows have their young to provide for, and the destruction of the old birds of course involves that of their young also. This reflection alone ought to prevent the least considerate from pursuing this inhuman sport. There is something cheering and poetical in the very appearance of these birds. They are harbingers of spring, reminding us that the winter is gone, and that the joyous summer time is coming. To the lover of nature the song of the swallow, the twitter of the martin, and the scream of the swift give the most agreeable sensations; and if it were in my power to convey to the mind of the swallow-shooter (I will not say sportsman) the delight many experience from hearing their notes and watching their manners, he would not only speedily abandon his pursuit, but be surprised how he could have taken pleasure in so cruel an amusement. Mr. White, in speaking of the Hirundines says, not more truly than eloquently, "They touch no fruit in our gardens; delight, all except one species, in attaching themselves to our houses; amuse us with their migrations, songs, and marvellous agility; and clear our outlets from the annoyances of gnats and other troublesome insects." I was led into this train of thought by witnessing, a few days since, at the ferry at Twickenham, two gentlemen enter a boat with their double barrels, and in as complete sporting costume as if they meditated a sporting campaign on a Norwegian fiord. I asked a boatman standing near what the gentlemen were going to shoot, and I give his answer verbatim,—*"Swallows, sir, the cruellest sport there is."*—*R. Wakefield; Lower Clapton, August 21, 1850.*

Occurrence of the Hobby (Falco subbuteo) at Lewes and Worthing, Sussex.—A beautiful adult female specimen of the bobby was captured in a bird-catcher's net near this town in September last, and is now in my possession. Another male specimen, obtained in a similar manner at Worthing, also came into my possession at the same time.—*J. B. Ellman; Lewes, October 18, 1850.*

Occurrence of the Kite (Falco milvus) near Market Weighton.—This bird was shot by the Earl of Londesborough's keeper, on his lordship's estate, near Market Weighton, on the 5th of July last, and is now in the collection of Mr. Sedgwick of Boro-bridge: it is a female.—*James C. Garth; Knaresborough, October 14th, 1850.*

Occurrence of the Ash coloured Harrier (Circus cineraceus) near Arundel.—Not long since I obtained a female specimen of this bird, which was shot in company with a male near the above place. I regret to add it was very much hurt.—*J. B. Ellman ; Lewes, October 18, 1850.*

Early appearance of the Merlin (Falco Æsalon) at Lewes.—I have this season had this bird brought me unusually early : it was caught alive on the 13th of September, near this town.—*Id.*

Occurrence of the Dartford Warbler (Sylvia undata) at Lewes.—On Saturday last I obtained the Dartford warbler among some furze bushes on the Downs. I have often searched for it in vain previously. Its form and note when once seen can never be mistaken.—*Id.*

[Will Mr. Ellman please give a description of its song, as some difference of opinion prevails on the subject.—*E. N.*]

Occurrence of the Twite (Fringilla montium) at Lewes.—On the 11th instant, I received a specimen of the "Scotch linnet," as the twite is called among the professionals in this county. I have never before observed it so early.—*Id.*

White Variety of the Twite.—About a month since, a pair of twites, perfectly white, were shot at Bewerly Moor, near Pately, and were forwarded to Mr. Stubbs, bird-stuffer, of Ripon, for preservation.—*James C. Garth ; Knaresborough, October 14, 1850.*

Cream-coloured variety of the Rook (Corvus frugilegus).—When at Harewood, a few weeks ago, I saw, at a birdstuffer's of that place, a cream-coloured rook, which had been sent there by Viscount Neville, of Woodhall, in the rookery of which place it had been shot last spring : it is a young bird of the year.—*Id.*

A Magpie's delicate attention to its Mistress.—A favourite magpie had been accustomed to receive dainty bits from the mouth of its mistress. The other day it perched as usual on her shoulder, and inserted its beak between her lips ; not, as it proved, to receive, for, as one good turn deserves another, the grateful bird dropped an immense green fat caterpillar into the lady's mouth.—*Literary Gazette, Oct. 12, 1850.*

Occurrence of the Hoopoe (Upupa Epops) near Stowmarket.—A specimen of the hoopoe was shot at Westhorpe, near this town, on Sunday (!) the 20th instant, by a labouring man ; it had kept about his house, in a ploughed field, for about a week. The bird was much shot and moulting, and, therefore, unfit for setting up.—*C. R. Bree ; Stowmarket, October, 1850.*

Occurrence of the Bee Eater (Merops Apiaster) at Icklesham, Sussex.—A specimen of this scarce bird, shot at the above place, has recently come into my possession. It has only once been observed previously in this county.—*J. B. Ellman ; Lewes, October 18, 1850.*

Occurrence of the Little Ringed Plover (Charadrius minor) near Whixley.—On the 30th of July last, a specimen of the little ringed plover was shot in a ploughing field, near Whixley, by Mr. James Styant, of that place : it was shot at a distance of twenty-five yards. It was observed to run very quickly over the land, and occasionally uttering a plaintive whistle. On dissection, it proved a male bird. I have noticed golden plovers in the same ground, during the winter months.—*James C. Garth ; Knaresborough, October 14, 1850.*

Occurrence of the Glossy Ibis (Ibis falcinellus) at Piddinghoe, Sussex.—A beautiful male specimen of this scarce bird was shot at the above place, on the 21st of May last, and is now in my possession. A day or two previous, a pair were seen, and I have no doubt that the female specimen, mentioned in the 'Zoologist' (Zool. 2879), killed in

Norfolk, was the mate of my bird. This is the first time it has ever occurred in Sussex.—*J. B. Ellman; Lewes, October 18, 1850.*

Nests of the Colymbus arcticus and Charadrius Morinellus.—Mr. C. Hubbard, a collector of Dickleborough, Norfolk, in a recent tour in the north of Scotland, met with the nest of *Colymbus arcticus*; and the eggs, two in number, I have added to my collection. He shot the male bird in Sutherlandshire, about thirteen miles from Loch Invar. He also found the eggs of *Anser ferus*, *A. segetum* and *A. albifrons*, on Lewis Island. He also met with the nest of *Charadrius Morinellus* on the top of Hoy, in the Orkneys, with three eggs, one of which I obtained from him.—*C. R. Bree; Stowmarket, October, 1850.*

Inquiry respecting the Food of a Freshwater Turtle.—A friend has given me a living specimen of a freshwater turtle, from Australia; its scientific designation I do not know. Its shell is only about three inches in length; it has a long serpent-like head and neck, and I fancy is the young of some species. I am at a loss how to feed it, and as a subscriber to the 'Zoologist,' take the liberty of asking whether you can suggest a suitable diet. The party from whom I received it, says it has been fed since its arrival in England, about two months ago, on grass and flies. I fancy it was on very short commons during its voyage. It certainly eats flies, but not apparently with any great appetite, and this food seems hardly substantial enough, and may be difficult to procure during the winter.—*Edwin Birchall, Jun.; Rosemount, near Leeds, October 22, 1850.*

Note on the Long-horned Cottus.—The following little incident respecting the above fish, which came under my notice to-day, may perhaps be worth recording. Happening to be spending the day at Sidmouth, I procured a few small fish of different species from among the rocks, which were exposed at low tide, and put them into a vessel of sea-water for the purpose of watching their movements. Amongst them were three specimens of the lesser sand-launce, about three inches in length; and two specimens of the long-horned cottus, about two and a half inches long; almost immediately upon the fishes being placed in the vessel of sea-water, into which they were put on being brought from the rocks, one of the specimens of the long-horned cottus attacked a sand-launce, and seizing it by the nape of the neck, held it firmly in that position for about two minutes, when it commenced swallowing its victim, head foremost, and continuing the deglutition very rapidly till about half the sand-launce had disappeared; the cottus then retired under the shelter of a stone, which had been placed in the vessel, with the remainder of the sand-launce protruding from its mouth, but continuing gradually to suck it down, and completing the operation in about an hour and a half from the time of the first attack.—*J. H. Gurney; Easton, Norfolk, October 4, 1850.*

Voracity of the Cuttle-fish.—In fishing to-day with baited lines for whiting, off Weymouth Bay, I saw an instance of the voracity of the cuttle-fish, which appeared to be very familiar to the fishermen, but which was new to me, and may probably be also new to some of the readers of the 'Zoologist.' A small whiting, of about five or six inches long, having taken the bait, and been hooked in doing so, was being drawn up into the boat, when he was seized by a cuttle-fish of the square-tailed species, about eighteen inches in length, which immediately bit off the head of the whiting, but in doing this was caught by the hook in one of its arms, and was itself thus captured. After this, the line was again being drawn up with two small whittings on the hooks, when a cuttle-fish rose up after it; and when so near the surface as to be clearly visible, threw its arms over the two whittings and drew them off the hooks without any injury to itself. In another instance, a whiting while being drawn up received a wound on the head, which the fishermen said was caused by a cuttle-fish. The picture is sometimes reversed, by the cuttle-fish being cut into pieces to serve as bait for the whittings, which seize the portions eagerly when so divided.—*J. H. Gurney; Easton, Norfolk, October 2, 1850.*

Curious Habit of Epeira diadema.—Some time since, while reading Darwin's 'Naturalist's Voyage,' I came across the following passage; speaking of a spider, he says, "This Epeira, when still further disturbed, practises a most curious manœuvre; standing in the middle it violently jerks the web, which is attached to elastic twigs, till at last the whole acquires such a rapid vibratory movement, that even the outline of the spider's body becomes indistinct" (page 37); this brought to my recollection that I had frequently observed a similar habit in one of our British species, and I determined to secure the next specimen I discovered disporting himself in this manner, with a view to ascertain the species. The enclosed specimen was arrested in the act; I believe it to be *Epeira diadema*, but not being learned in the Arachnida, I send it up for examination. It is commonly observed in gardens and woods, posted in the centre of its web, and if blown upon with a slight puff of the breath will commence oscillating, in the manner of the above-mentioned foreign species, to the extent of about three-quarters of an inch; the distance probably depending on the size of the web, or rather the length of the principal threads. I can hardly suppose that this habit has been hitherto unnoticed, but as I have never seen it mentioned, it may, perhaps, be worth recording.—*George Guyon; Richmond, Surrey, October 17, 1850.*

Capture of Lepidoptera at Almondsbury, Gloucestershire, not reported in the 'Zoologist' for August.—

Tortrix Sorbiana. July 8th, flying at dusk round nut-bushes in rough pasture near Patchway, called Stoke rough ground, mentioned frequently in the following lines. It abounds with *Genista tinctoria*, *Scabiosa arvensis* and other similar plants, being nearly uncultivated. The soil is clay, in common with the rest of the fields, with which it forms an extensive tract of poor bitter land.

T. spectrana. This was numerous in beginning of July among *Carex paludosa*, in an obsolete fishpond called Oakhall Pool, and its capture amused me, from the pertinacity with which it slinks through the sedge as you seek for it till it has travelled perhaps two yards through it, gradually gliding lower down till it finally rests in the dank weeds at the roots of the plants. You are compelled to insert your beating-rod between portions of the sedge, and rapidly press it down so as to open a view, when you will generally see the insect just entering the succeeding part of "the cover," and so you keep on till you have "run him to earth." He lies usually still enough then to be taken in the catch-box. It is no joke though to follow up the sport with spirit, as it involves an occasional plunge in the swamp (up to your knees, perhaps) when the evolved gas reminds you as little as may be of "an ounce of civet." The wet feet of course I say nothing of, as they are an unavoidable evil at which no true sportsman would be dismayed.

Leptogramma literana and its varieties, have not been seen by me this season, though I have always hitherto taken at least a dozen every September by beating the oaks in our meadows and woodsides.

Sericoris conchana. July 8th, flying at sunset in Stoke rough ground, plentifully.

Hypermeria augustana. July 4th, beaten from bushes in open parts of Hortham Wood, and the hedges of rheens (as our marsh ditches are called), always in damp places.

Pediscia ophthalmicana. October 1st, beaten off aspens and near them, in Hortham Wood.

Ephippiphora tetragonana. July 6th, beaten off mixed underwood in Hortham and Haye Woods; rather scarce.

Retinis Buoliana. August 3rd, beaten off pines at Tockington-park Wood; scarce.

Discorampa sequana. June 9th, plentiful among long grass and fern in gorse cover, flying at noon with Petiverana.

Trycheris mediana. July 6th, feeding at hot noon on umbels of *Heracleum*, usually in damp localities, but there few in number; while on the only two spots upon our limestone hill where I take it, the specimens are numerous.

Eupacilia notulana. This almost failed me last July, owing to the sedgy rheens having been thrown out. All I took were in company with *spectrana* at Oakhall Pool. It flies for a very brief space of time, at sunset (say ten minutes), and as it is rather numerous with me in its habitat, I should fancy it must have escaped the notice of collectors so long chiefly from that circumstance.

TINEIDÆ. (The nomenclature from Mr. Stainton's Systematic Catalogue).

Eudorea coarctata. Pretty common in September at night, on golden-rod blossoms in my garden.

Adela rufimetrella. May 22nd, sweeping *Carex recurva* and small rushes in the grips of one small meadow; only seven specimens.

Plutella alpella. September 6th, beaten off oaks on west side of Woodland Copse; scarce.

Cecophora quadripunctella. June 7th, bushes and rides in Hortham Wood; not rare.

C. ochraceella (Curt.) July 10th, flying at sunset, among the *Carex* and rushes, and *Epilobium hirsutum*, in Oakhall Pool; not scarce there.

Æ. grandipennis. June 26th, rather frequent in sunshine, on furze-bushes, on Durdham Down; but I neglected to take above three, as I was exclusively paying my devoirs to *Crambus dumetellus* just at that time. I have mentioned the fact to Mr. Vaughan, who lives near the down, and he will doubtless secure a supply for his friends next season. By the bye, why does this clever and very successful amateur refrain from allowing the world to be benefited by some account of his campaigns?

Depressaria propinquella. In May and October, on gorse and golden-rod; not scarce.

D. subpropinquella is very scarce; both best found by lamp-light.

D. Hypericella. July 20th, several bred from larvæ found on *Hypericum perforatum*, about June 12th.

Gelechia Isabella (Mann.) *rufescens* (Haw.) July 20th, among *Carex* in Oakhall Pool, at sunset, and in afternoon, by beating in a very shady, damp, grassy, fir plantation (chiefly); scarce.

G. subocella (St.) July 14th, sunset, flying among *Carex* in Oakhall Pool, and not easily taken, having the same slinking mode of action as *spectrana*: not numerous.

G. bifractella (Mann.) July 29th, sunset, grassy bank of Hortham Wood; rare.

G. Inula (Curt.) July 20th, sunset flight, long grass in verge of Woodland Copse; scarce.

G. gibbosella. July 18th, beating bushes near aspens, and I believe disturbed off the stems of the trees in Hortham Wood; but having seen but three, and those in flight, I cannot be positive.

G. senectella. July 12th, beaten from grassy places in gorse cover and old quarries; not rare.

Argyresthia semitestacella. August 14th, beaten off beeches in several localities, but worn. I have no doubt they may be taken wherever the beech is found, at the end of July.

A. semifusca. August 6th, beaten out of orchard hedge, but it is rather rare here.

Coleophora episcicornis, *deauratella* and *Frischella* (*Alcyonipennella*?). I took one or two of each of these among clover and rye-grass, and among some rushes in damp, cold pastures, at Patchway, at noon and sunset, chiefly the latter; scarce.

C. albicosta. June 10th, among nettles and gorse in cover; not rare.

C. Gallipennella. June 26th, grassy verge of Woodland Copse, at sunset; scarce.

C. lineola. September 4th, Stoke rough ground, at sunset; scarce.

C. Tilliella. July 6th, sunset, among *Carex* and rushes in Oakhall Pool; scarce.

C. Coraciipennella. June and July; not scarce on sides of grassy ditches and banks.

C. nigricella. End of June, grassy ditch on side of copse at sunset, in flight; scarcer.

C. badiipennella. June 12th, sunset, grassy verge of Woodland Copse; scarce.

C. Lusciniapennella. June 23rd, sunset, grassy, rushy ditch of meadow; scarce.

C. orbitella. July 3rd, sunset, bushes and grass in swampy part of Hortham Wood; scarce.

C. saturatella. July 3rd, sunset, Stoke rough ground; scarce.

C. lacunicolella. June 26th, sunset, grassy ditch of Woodland Copse; scarce.

C. annulatella. July 7th, sunset, rushy ditches near Patchway; not rare.

C. Binderella. July 7th, same time and place as *annulatella*; scarce.

C. discordella. July 7th, sunset, Stoke rough ground; not rare.

Gracilaria semifascia. May, June, August and October, shrubs and furze-hedges round Almondsbury Hill, and from bramble-hedges, by beating; not very rare.

G. sulphurella. September 6th, beaten off willows and wild cherries; not rare.

Elachista basipallidella. June 28th, rides of Hortham and Haye Woods; scarce.

E. obscurepunctella. April 26th, flying in sunshine, from 12 to 4, by dry hedges and brambles in meadows; local, but not scarce.

E. Pfeifferella. Same time and place as *obscurepunctella*, but more plentiful.

Opostega crepusculella. July 6th, sunset, flying up out of aftermath clover, near Winterbourn, and in Stoke rough ground.

Bucculatrix aurimaculella. June 8th, sunset, flying over and settled on the *Carex recurva*, in low poor pastures, by sweeping chiefly; not rare, though local.

B. Boyerella. June 20th, beaten off elms, near Patchway; not common.

B. vetustella. June 20th, beaten off oaks, near Woodland; very rare.

B. Frangulella. May 28th, beaten off elms, and in Stoke rough ground; not rare.

Nepticula floslactella. September 18th, beaten out of hedge of Woodland Copse; rare.

Lithocolletis Spinoella. May and August, oaks and willows in Hortham Wood; not rare.

L. Schreberella. May 26th, off pollard wych-elm hedge of fir copse, at noon; local, but numerous.

L. Uliciolella (Vaughan). June 26, beaten out of furze-bushes, round large quarry on Durdham Down, at noon; not scarce.

Pterophorus acanthodactylus. September 3rd, sunset, flying along grassy bank of Woodland Copse; scarce.

P. punctidactylus. July and September, sunset, flying in same place as preceding, and on summit of the Quantock hills, among heather; less scarce than the preceding.

I have specimens of some other Gelechiæ and Elachistæ, which I am advised are new, but I delay noticing them till they shall have received the fiat of Mr. Stainton.—*J. Allen Hill; Almondsbury House, October 11, 1850.*

New British Micro-Lepidoptera.—Among the insects I obtained from Mr. Weaver, captured by him in his recent excursion to Scotland, was a pair of *Tineæ*, *pr.*, taken, as he informed me, in grubbing up ants nests, while in search of larvæ. The insect in question, my friend Mr. Stainton informs me, is the *Tinea ochreella* of Tengstrom, who appears to have found two specimens, in separate years, upon ants nests; certainly a singular habitation for a Lepidopteron. I have long possessed a remarkable unset *Crambus*, of my own catching in the vicinity of London, I think near Guildford; not having the opportunity of thoroughly investigating it, although evidently distinct from all others, Mr. Stainton forwarded the specimen to Zeller, who has returned it as the true *Lythargyrellus* (accompanied by a German example); we, therefore, must now reintroduce that name into our lists, and record the species as a real addition to our Fauna.—*J. F. Stephens; Elltham Cottage, October 23, 1850.*

Capture of Epunda Lichenea.—Nearly one hundred specimens of this insect have been taken at New Brighton. I have taken nineteen specimens, most I found sitting on dead sticks and the roots of grass in the hedges. The first was taken on the 9th of September.—*Stephen Robson; Liscard Vale, near New Brighton, October 2, 1850.*

Observations on the study of Dipterous Insects.—Few among the many interesting observations on insects inserted in the 'Zoologist,' are accorded to the Diptera, which have been sadly neglected in this country; and though I scarcely hope that any remarks of mine on this branch of entomology, will stimulate British naturalists to increased activity in its pursuit, yet I cannot resist saying a few words on the peculiar points of interest which it appears to me to possess. Two-winged insects lie under the opprobrium of displaying neither elegance of form nor brilliancy of colour, but very unjustly, and they may fairly rank on an equality in these respects with the Coleoptera. Some of the Syrphidæ (for instance the different species of Volucella), equal the humble bees in beauty, and by ordinary observers can scarcely be distinguished from them; and the common green bottle-fly (*Musca Cæsar*), and some of the Stratiomydæ, as well as many species in other families, vie in metallic brilliancy of colour with the most beautiful of the Coleoptera. Diptera have been said to owe their notoriety in a great measure "to the disgusting habits and appearance of their preparatory states." Surely this remark is not more applicable to them than to the beetle tribe; and with regard to the perfect insects, many more species of Coleoptera revel in filth than of Diptera: in fact, a very large proportion of the latter live entirely on the nectar of flowers, and may be found in the society of the most elegant and beautiful of the insect world. Dipterous insects attract our attention, and should excite our interest by their ubiquity. In warm weather they everywhere obtrude themselves on our notice; and while Coleoptera, which are much greater favourites with most entomologists (though the Lepidoptera still seem to occupy the first rank, at all events among collectors, if we may judge from the greater space occupied in the 'Zoologist' by the notices of the capture of rare species), require to be sought for, being comparatively seldom on the wing, and being many of them nocturnal feeders; Diptera, on the contrary, pass the greater portion of their lives in the air, where the individuals of many species swarm in countless numbers. The naturalist who is anxious to become acquainted with all the animated objects that surround him, feels especially interested with those thrown most prominently in his way; and when, for instance, he sees the clouds of Tipulidæ which dance in the air on a summer's evening, he naturally wishes to know whether they are all of the same species, or present an endless variety; and if he is thus led to study this interesting family, he will find that though most of the individuals composing a particular swarm, are of the same species, yet that the number of distinct species occurring in different localities, is very great: nearly one hundred British species of Chironomus alone having been already described. The lover of Natural History who is pent up in a large town, will take a particular interest in this order, for it may be studied at home; numerous flies being to be found, almost at all seasons, in every stable and outhouse, as well as on the windows of our habitations. The chief point of interest in the study of Diptera, however, is the greater degree of novelty which it possesses: the field is fresher and less trodden down (at least in England), and thus the labourer will be rewarded by reaping a more abundant harvest. The naturalist will meet with many new species, and will find many others common in particular localities, which have been reputed rare inhabitants of Britain. Thus the *Atherix crassicornis* is a very common fly in this neighbourhood in the month of June; though Mr. Curtis says in his 'British Entomology,' that he had seen only one British specimen which was captured in Scotland. A few weeks back, I spent about half an hour on the sand-hills at New Brighton, on the Cheshire coast, and speedily collected numerous Diptera, several of which are described as being un-

common. I may particularly mention *Tetanops myopina*; I also met with *Pipuncululus pratorum*, and *Asilus forcipatus*; the last was taken in the act of sucking the juices from the body of the species of an allied genus, which it had captured, *viz.*, the *Dasygogon brevisrostris*. A few days back I found *Porphyrops latipes* of Macquart, in the neighbourhood of Bradford; and I could enumerate many other undescribed or uncommon species; but by so doing, I should encroach too much on your pages, and tire your readers. In conclusion, I may briefly notice the most serious difficulty which the British student here has to contend with; I allude to the literature of the subject. No work yet exists in the English language, describing the genera and species of British Diptera, and it is necessary to have recourse to foreign authors. I am glad to say that this difficulty is soon likely to be removed, for the publication society which has recently been formed, under the patronage of the Entomological Society, intends to commence a series of works entitled, '*Insecta Britannica*,' by a volume on Diptera, from the pen of Mr. F. Walker, who is well known for his attention to this order of insects;* and I hope that by means of this society an impulse will be given to the pursuit of both Diptera and Hemiptera, which will raise these hitherto neglected branches of our favourite study, to a level with the more favoured orders.—*R. H. Meade; Bradford, Yorkshire, August 24, 1850.*

Impregnation of the Queen Bee.—In the beginning of the month of June, 1803 or 1804, the Rev. Edward Ridsdale witnessed at his apiary, at Ditton Priors, the return of a young queen bee, after impregnation in the air. Standing two or three yards distant from the entrance of a hive, which he knew had lost its old mother-queen, sometime in the spring of the year, he suddenly noticed, what he supposed, at the first thought, to be a dead drone carried out (as is frequently to be seen, at the end of July or beginning of August) by two workers, with the thought instantly passing through the mind, "how strange to be killing drones at this time of the year" (the beginning of June); but in a moment afterwards he perceived his mistake: for, although it was evidently a dead drone that was so carried about, it was not two workers who were the bearers, but majesty herself, returning from her ærial excursion, with the unfortunate male still attached. She then quickly made two or three very small circular flights, so as to be distinctly visible, employed in detaching herself from her dead companion, opposite the entrance to her own hive; and having at length succeeded in so doing, the then evidently dead drone fell from her to the ground, and she entered her abode.—*Edward Ridsdale; Ditton Priors, Bridgenorth, August 13, 1850.*

On the Habits of Sirex juvencus.—About the middle of August last, upon splitting down a dead spruce-fir, girthing on an average six inches, many specimens of this handsome hymenopterous insect were found, in all stages, from the larva to the perfect fly. The eggs had been deposited by the parent just below the bark, which she had penetrated in various places with her ovipositor, and as soon as they were hatched the larvæ directed their course towards the centre of the tree, casting behind them,

* Some of my readers may not be aware that there is a very useful Catalogue of the Diptera in the British Museum, drawn up by this gentleman, which includes most of the British species with their synonyms, and also references to the different authors by whom they have been described, with full descriptions of all those species which appear to be undescribed: it is sold at the Museum.—*R. H. Meade.*

into that part of the hole already excavated, the remains of the wood which they had gnawed, and which they deposited there in the form of very minute saw-dust compactly pressed together. They underwent all their changes in the body of the tree, and the perfect insects continued gnawing their way until they emerged from their prison through cylindrical holes nearly on the opposite side of that where the ovipositor had been originally inserted. It is the dead tree *only* that the insect attacks, and I do not apprehend therefore that any injury can occur to thriving plantations from their peculiar habits: their food consists altogether of the wood of the tree in which the eggs are laid, and the spruce-fir seems to be selected above all others as their favorite locality.—*Oswald Mosley; Rolleston Hall, September 27, 1850.*

Note on Lamia Textor.—A living specimen of *Lamia Textor*, which has been in my possession about six weeks, shows slight patches of mould on various parts of its body, especially at the base of the elytra and insertion of the head. The cause is, no doubt, the dampness of the earth in its cage, but I never before saw mould show itself on a living animal. I have never seen it noticed that this species produces an audible creaking sound on being handled; the insect, if seized by the body, bends down its head and thorax, and on raising them the sound is heard; it is very distinct, and appears to be caused by the friction at the base of the thorax.—*George Guyon; Richmond, Surrey, October 17, 1850.*

Capture of Dictyopterus Aurora in Scotland.—A report has recently obtained circulation that *Cucujus depressus* had been taken in Scotland: this proves to be erroneous, as the specimen of the insect in question, and which is now in my collection, proves to be *Dictyopterus Aurora*, a not very uncommon insect in Sweden, but hitherto unknown as British. It is a beautiful addition to our Fauna, and was taken flying, in Perthshire, by Mr. Weaver, in June last.—*J. F. Stephens; Eltham Cottage, Foxley Road, October 18, 1850.*

Proceedings of the Entomological Society.

October 7, 1850.—G. R. WATERHOUSE, Esq., President, in the chair.

The following donations were announced, and thanks ordered to be given to the donors thereof: The 'Zoologist,' for October; presented by the Editor. 'Entomologische Zeitung,' for August and September; presented by the Entomological Society of Stettin. 'Annales de la Société Entomologique de France,' 1848. 'Troisième et Quatrième Trimestres,' and 1849, complete. 'Insecta Saundersiana, or Characters of Undescribed Insects in the Collection of W. W. Saunders, Esq.; Diptera, Part I., by Francis Walker, Esq.'; presented by W. W. Saunders, Esq. A small collection of Insects from Hong Kong; presented by J. C. Bowering, Esq., Corresponding M. E. S.

George Guyon, Esq., of Richmond and Ventnor, and Mr. Charles Potter, 6, Coleman Street, were elected subscribers.

Mr. S. Stevens exhibited some beautiful Lepidoptera, received from Mr. Bates, collected by him at Ega, Upper Amazons, including a new species of *Papilio*, *Hectera Andromeda*, a new species of *Castnia*, and a new *Callithea*; also some Homoptera and Diptera of curious form, and some conspicuous Staphylinidæ.

Mr. Shepherd exhibited three specimens of *Aphomia anella*, a species new to Britain, taken near Dover.

Mr. Bond exhibited a hermaphrodite specimen of *Arctia Caja*, reared from a larva which did not present any remarkable appearance. It was observed of this specimen that the female half was on the right side, it being usually in such cases found upon the left. Mr. Bond also exhibited a variety of *Sphinx Ligustri*, and a pale variety of *Charissa pullata*.

Mr. Westwood, on the part of Mr. Gould, exhibited two insects he had found in Scotland impaled on the spines of furze. In former instances of insects impaled on thorns, it had been suggested that they might have been so placed by shrikes, but this was scarcely probable in this case, as shrikes were not known in Scotland. One of the insects was *Coccinella 7-punctata*, which was alive when found; it had been suggested that it had impaled itself by flying against the spines, which was barely possible: in the other instance a suicide was still less likely to have occurred, the insect being the caterpillar of *Phragmatobia Menthrasti*. The subject of insects impaled on thorns required elucidation.

Mr. Westwood, on the part of Captain Parry, exhibited a specimen of *Goliathus Druræi* enclosed in its pupa-case, in which it was alive when received in England. Mr. Westwood observed that the cases of some *Lamellicorn* larvæ were formed by the parent insects, but he was inclined to believe that this was made by the larva itself, as in the instances of some *Noctuæ* and *Cetoniadæ*.

Mr. Westwood exhibited a larva of *Lymexylon navale* in spirit, received from Pembroke Dockyard. On seeing it, the president said he was now sure that he had once found a larva of this beetle in hard dead wood of an oak in Windsor Forest, close to the place where Mr. Griesbach had taken the perfect insect. At that time he was not certain that it was the larva of this species, though he strongly suspected it. Mr. Westwood also exhibited a larva of *Apatæ Capucina* in spirit; observing that it greatly resembled the larvæ of the *Ptinidæ* to which it was doubtless related.

Adverting to the butterfly received from Mrs. Hamilton and exhibited at the last meeting, Mr. Westwood said, that judging from the characters furnished by the larva it had then been referred to the genus *Danaïs*, but it appeared on a more careful examination of the butterfly, that notwithstanding these characters of the caterpillar, it did not belong to the genus, but was in reality a *Hestia*; showing at least that no one set of characters could be exclusively relied upon for separating subgenera.

Mr. Douglas exhibited a specimen of *Hypera Rumicis*, of which he had found the pupa in its round, reticulated, diaphanous cocoon, attached to a blade of grass at Folkstone, in July. He had put it into a pill-box and watched it daily until the imago emerged, and when he then saw it not a vestige of the cocoon was visible, so that he had no doubt it had eaten up its former covering.

A letter was read from J. C. Bowring, Esq., corresponding member at Hong Kong, of which the following is an extract:—"July 30, 1850. In 1848, I exhibited to the Society a curious Coccus-like insect, parasitic upon *Fulgora candelaria*, which excited some attention, and gave rise to considerable discussion as to the order to which it belonged. On my return to China, towards the close of 1848, I endeavoured to rear this parasite, but without success until last month, owing chiefly to the difficulty of keeping the *Fulgoræ* alive in captivity. The young larvæ are found, varying from the size of a pin's head to half an inch in length, attached to the dorsal segments

of the Fulgoræ, there being rarely more than one parasite on a Fulgora. When young, they are destitute of the cottony covering which gives them so great an appearance of Cocci, but as they grow larger this makes its appearance until they are densely covered with it. Arrived at this stage they drop off from the Fulgoræ, and retire to some safe place, where they may undergo their transformation to the pupa state. I have not been able to discover in what way the insect spins its coating of cotton into a cocoon, but it is evident that it does do so, forming a comfortable looking, compact nidus, lined internally with strong and stiff material. The period during which the insect remains in the pupa state is very variable; in one instance it was nine days, in another, upwards of two months; the latter case was during the cool season, the former, last month. On attaining the perfect state the insect makes its escape from its nidus by an opening at one end, leaving the pupa-case protruding therefrom about half its length, like the Oiketici.

"The specimen labelled 'No. 2,' I consider particularly interesting. I had it in my box for some time, when one day a number of minute Hymenoptera issued from it, parasites on a parasite. I was unable, to my regret, to capture any of these, for they were so small that they escaped through the gauze covering of my breeding-cage, and I did not perceive them till it was too late."

Mr. Bowring adds that, although it will be deemed very extraordinary, he thinks the insect reared from the Coccens-like parasite is Lepidopterous. Unfortunately the insect he reared and forwarded became so broken on its journey that not sufficient remained to show to what order it belonged.

The following note by Mr. Newman was read, on

"*The way Bees open the Snapdragons.*—I have been much amused and instructed by watching wild bees of the genera *Bombus* and *Megachile* open the blossoms of the snapdragons, that is, the garden varieties of *Antirrhinum majus*. This species is so great a favourite with the bees, that the flowers are frequently destroyed by the assiduity of their visitors, and one variety in particular, the corolla of which is unusually delicate, rarely attains perfection unless enclosed by a covering of gauze or glass.

"I have remarked in the first place the truth of the assertion, which I fear I have too often condemned as merely poetic, that the same individual bee never tries the same flower a second time. Even though it shall have sipped at fifty of these little fountains of nectar between two visits to any particular flower, and though on the second visit, it shall approach that particular flower quite as eagerly as on the first, yet it is simply a visit of inquiry, as it invariably leaves the flower, without the slightest attempt to enter it a second time. Now how does the bee ascertain that the sweets of the flower have already been rifled by herself? What organ of sense aids her in making the discovery? Certainly the fact of the honey having been abstracted is not perceptible, for I watched a bee enter every one of six flowers on a plant, and in the space of a few minutes, another bee did the same; and then another, and another: as many as fifteen or twenty bees will occasionally come to an isolated plant within an hour, and the last comer will not appear aware of the previous visits; and yet the *same* bee never opens the *same* flower twice.

"In the second place there are four different modes, practised by as many species, in which the pollen or honey is obtained: these I will describe separately.

"1. *Megachile centuncularis* alights on the *upper* lip of the flower, and crawls into the mouth with its back downwards; and the hairy pollen-brush of its abdomen

is closely appressed, by the elastic spring in the under lip of the flower to the hairy interior surface of the upper: by this means the pollen is brushed from the anthers and received by the pollen-brush of the bee, and also by the hairy interior surface of the upper lip of the flower: as this bee disappears within the corolla it is fair to assume it sips honey from the nectary, as well as gathering pollen from the anthers, and thus accomplishing a double purpose in its visit.

"2. *Bombus* ———? invariably alights on the *lower* lip of the flower, which it enters in the ordinary position of its race, with the back upwards: the mesothoracic sections press the anthers against the hairy surface to which I have already alluded, and there remains on the mesothorax of the bee a yellow stripe of pollen, which, however, does not appear to be a desideratum, but on the contrary rather an annoyance, as the bee will often settle on a leaf, and passing its fore legs over its alary segments try to scrape or brush away the pollen which clings there. Although the mouth of the corolla is greatly distended as the bee enters, still the presence of the latter when entirely within the tube is not perceptible.

"3. *Bombus* ———? alights on the common flower-stalk, just below the flower, and with its sharp scissors-like mandibles cuts a hole in the corolla close to the nectary, which in the true *Antirrhinum* is not elongated into a spur as in *Linaria vulgaris* and its congeners: cutting the aperture is scarcely the work of a second: when accomplished, the tongue or rather labial apparatus is immediately thrust through the aperture, and the delicious liquid abstracted: it frequently, indeed *most* frequently, happens, that the honey has been already consumed by one or other of the species already noticed, and the difference in the bearing of the bee is very remarkable: when disappointed, she immediately flies away with a sharp angry hum, as though out of temper: but when successful, she imbibes the nectar with much deliberation, and apparent satisfaction; and makes a kind of purring noise, probably with her wings, while engaged in the agreeable occupation: having finished the task, she strokes her head and antennæ with her fore feet, somewhat as a cat washes her face; and rests at least a minute before seeking another meal.

"4. *Bombus* ———? a very large bee, which alighting on the lower lip of the corolla opens the mouth of the flower, and whilst standing in this position, thrusts its enormous labial apparatus into the tube until it reaches the nectary. I believe this is the female of No. 2, all of which I found to be neuters, and I have so seldom had an opportunity of watching its operations that I should not have recorded them, had not Mr. Stainton informed me he had frequently observed the same habits in a large *Bombus* in Devonshire."

Mr. Westwood observed, that it did not appear to have occurred to Mr. Newman that a bee might operate on a flower in different ways, guided thereto by its wants. If it required pollen it would enter with its back downward, in order, as Mr. Newman had observed, that it might place its abdomen in contact with the anthers; but if seeking honey, it would enter the flower in the ordinary manner.

It was announced that Part II. of Vol. I. new series of the Transactions was ready for delivery.—*J. W. D.*

*Extracts from the Correspondence of Mr. H. W. Bates, now forming
Entomological Collections in South America.*

(Continued from page 2044).

“Ega, Upper Amazona,
June 15th, 1850.

“The above [*viz.* 847 Lepidoptera, 497 Coleoptera, and 92 various] is the result of my labours so far in this new locality; I wrote to you (with collections) from Barra de Rio Negro by a vessel which sailed from thence on the 26th of March, informing you of my poor success hitherto in the interior (which you will see by the collections sent), by which letter you would learn that I was about ascending to this place. The voyage was horrible, worse than any expectation with experience of Amazon voyages that could have been formed. I embarked at Barra on the 26th of March, and arrived here on the 1st of May (thirty-five days) against furious currents, head winds, almost incessant rain, and amidst swarms of insect pests. I am glad to say this station is likely to prove a good one; hitherto the weather has been unfavourable to operations in the woods, being still the wet season, and the forest moist and cold; I have not been able to work more than twenty-five days out of forty-five. I have taken more than forty conspicuous *new* Diurnes, besides a great number of Coleoptera I have not seen anywhere else. Shells there are scarcely any, in fact, the whole valley of the Amazona may be set down as poor in shells; but in birds I shall be able to do something, as many of the rare Rio Negro species are more abundant here than there; but it is necessary to have time and patience, as the hunters here, on whom you are obliged to depend, are very slow, and I cannot employ any constantly until I receive more funds from below. I intend to stay here four or five months; at present I have not done a fourth part of what there is to do in the insects, and I am convinced the locality is as rich in Diurnes as Pará, and far more rich in Coleoptera. I send no private collection, therefore the unique specimens remain with me. In the collection I send, you will find three new (to me) species of Papilio, one with silky-green spot on the fore wings and crimson on the hind wings, extremely beautiful; two other new species remain with me at present, being unique, one of them is very extraordinary, having exactly the form and style of marking of the Heli-

conia. Of handsome Nymphalidæ I send you numbers of new species, the locality being rich in this family; there are two new Hæteræ, sister of Esmeralda, very beautiful, though I believe known to Europe,* I took for the first time here. In Erycinidæ and Theclæ, I expect to do much when the forest has been heated by a week's sun; at present I send you few novelties. You must have patience, as I have, that I do not send you larger collections, and consider the difficulties we have to undergo in this wild, desert country. From Barra to here, the bank of the river is one unbroken mass of dense, tangled forest, utterly impenetrable, destitute of insects, or rather being uniform forest, spread over thousands of square leagues, the few insects, equally spread over it, do not appear in abundance in any one particular spot; it is therefore only in the immediate vicinity of settlements, where the forest is thinned and threaded with pathways, that any number congregate together; and in travelling from one settlement to another the whole time is lost, besides the days lost before embarking and after landing in a new place. The pursuit could not pay, if it were not that the expenses are trifling. My passage here cost me nothing, except a few shillings in provisions, and here I do not spend more than £2 a month; as to inconveniences, the exquisite pleasure of finding another new species of these lovely creatures, supports one against everything. In the disposal of this little collection, our friends must recollect the distance of the locality, and if there are new things, must give the best price for them. I am without communication of any kind from England since the end of October, when I received yours of August 13th, and am very anxious for the arrival of my countrymen, Messrs. Williams and Bradley, from Parà, with the cash you have forwarded for me. I am glad to say I am in capital health, and get along very well with these half-civilized people."

H. W. BATES.

(To be continued).

Correction of two previous errors.—In the note on birds near Bridgewater (Zool. 2848) are two or three errors. Cirl buntings, &c., during "unpleasant weather" should be "pleasant weather." A small flock of "spotted flycatchers," should be "pied flycatchers."—*W. Baker; Bridgewater, July 3, 1850.*

[I regret the occurrence of these errors, but on reference find both in the MS.—*E. N.*]

* Hætera Andromeda. One specimen in the cabinet of the British Museum.—*S. S.*

Correction of a date.—The glossy ibis mentioned in the 'Zoologist' (Zool. 2953), was shot on the 26th of May last (not the 21st); and Mr. Gurney records the Norfolk specimen as shot on the 27th of May.—*J. B. Ellman; Leves, November 6, 1850.*

Enquiry respecting a Bird's Nest.—I have in my possession a very peculiar nest, which was found by a friend of mine, Richard Irwin, Esq. of Rathmile, Co. Roscommon, a diligent and accurate observer, not many days since. The nest was placed in the fork of an alder-bush, overhanging the River Tame, at Perry Barr, Staffordshire. It was placed at a height of about ten feet from the ground, close to the main stem, which was not more than an inch and a quarter in diameter. The nest is loosely constructed of very old-looking pieces of hay and dead weeds, with here and there a very small piece of moss. The lining is of dandelion-down and seed, with one small piece of wool, one feather and a few white hairs. It is rather thick at the bottom of nest, but thin and scattered at the sides. The extreme average diameter of the nest is two inches and a half. The cup is one inch four lines in diameter at the top, and one inch and a quarter in depth. The exterior depth is two inches and a half. There were four eggs, each of which was six-tenths of an inch in length, by four and a half tenths in breadth. Before they were blown they had a slight bluish tint, with scarcely perceptible lines radiating from the small end. Since being blown, they are of an uniform ivory white. The eggs were perfectly fresh, so that four may not be the maximum number: it is the smallest nest I have ever seen, with the exception of that of the humming-bird. Can you, or any of your correspondents give me any information as to the species to which it belongs?—*Francis Kerril Amhurst; St. Mary's, Oscott, June 6, 1850.*

Curious act of apparent Reasoning in Birds of the Parrot Tribe.—On recently visiting the Zoological Gardens in Regent's Park, I observed a little incident which I thought worthy of record. A very large white cockatoo and a much smaller green parrot inhabited the same cage; on offering them nuts, the parrot took the nut, but instead of endeavouring to crack it, immediately carried it to the cockatoo, and transferred it from his own bill to the more powerful mandibles of his neighbour, who forthwith cracked it and then divided the kernel, swallowing half himself, and honestly returning the remainder to the parrot. I saw these two birds repeat this manoeuvre at least a dozen times consecutively.—*J. H. Gurney; Easton, Norfolk, November 7, 1850.*

Occurrence of the Osprey (Falco halimetus) at Toddington, Bedfordshire.—A fine specimen of the osprey was shot last month by the Rev. Lindsay Cooper, at Toddington, Beds, and sent for preservation to (I believe) Mr. Leadbeater. As no instance is recorded of the bird having been procured before in Bedfordshire, I conclude the information will be acceptable.—*C. Hervey Smith; Aspley House, near Woburn, Beds, November 2, 1850.*

Note on the Dartford Warbler (Sylvia undata).—I perceive by the November number of the 'Zoologist' (Zool. 2953), that you wish me to give you information respecting the song of this bird. I am sorry I cannot gratify your wish as I have never heard the bird "sing." The bird I shot on the 12th ult., only gave two sharp notes before I shot it. This morning I took an early ramble on the downs for the express purpose of endeavouring to obtain the bird; and after some time I heard a double note (strange to me) repeated four or five times. The sound may be accurately produced by the words "tscha" "tscha," beginning by making a catch at the

"t" and drawing out the first note. On following the sound, I afterwards heard about twenty double notes, but never more than one double note at a time. At last I caught a glimpse of the bird; and after the manner of a true wren, the little fellow entered the bottom of a whitethorn and soon appeared at the top, when I shot him. Having now obtained two specimens, I shall in all probability content myself with observing its habits (should I again have an opportunity of seeing it) without molesting it.—*J. B. Ellman; Lewes, November 7, 1850.*

Nest and Eggs of the Rose-coloured Pastor (Pastor roseus).—As very little seems to be known about the nest and eggs of the rose-coloured pastor, perhaps you may think the following worthy of notice in the 'Zoologist.' It was communicated to me by Mr. Linder, who stuffed a great many of the birds in the museum here, and on whose accuracy I can quite depend. The nest of the rose-coloured pastor has been found three times in the canton of Geneva: the first instance was in the year 1810, at Naydan, near Salève; the second at Vernoux, a village by the side of the Lake of Geneva, in 1847; the third was in a hole in a nut-tree, and resembled that of the common starling. The eggs are pure white, of the size and shape of those of the common starling, in whose company the rose-coloured pastor is generally observed hereabouts.—*T. L. Powys; Geneva, October 28, 1850.*

Rook with slate-coloured back and belly.—A rook was shot last week at Newchurch with the back and belly of a light slate-colour; several others were seen at the time, and as they appear never to have been seen here before, and as I can find no account in Montagu's 'Dictionary,' I thought it might be rare. I enclose you a few of the slate-coloured feathers from the back.—*H. Drew; Ventnor, Isle of Wight, October 30, 1850.*

[The feathers sent are those of the hooded crow (*Corvus Cornix*) not those of the rook (*Corvus frugilegus*). I cannot say whether my correspondent has mistaken the species, or taken the feathers unintentionally from a wrong bird.—*E. Newman.*]

Immigration of the Black Grouse (Tetrao Tetrix) in the vicinity of Bowness.—It is an interesting fact in the Natural History of our district, that we have had within these few years, an extensive immigration of that noble bird, the black grouse, of which, I believe, there is no record or memory that they ever existed here before. Having heard that they were first seen in the neighbourhood of Sawrey, and feeling a desire to know this to be a fact, as well as to ascertain the date of their first appearance, I wrote to Mr. Wilson of High Wray, a gentleman, who, I was persuaded, could satisfy me on these points. I subjoin a copy of his letter, which he has kindly permitted me to send you.

"High Wray, July 30th, 1850. — Esteemed Friend, I have been too long in answering thy inquiries respecting the black game. The delay has arisen from my wish to have my account, as to date, confirmed by another person. In the autumn of 1845, about September, I discovered, about a mile and a half from this place, in a young plantation belonging to Henry Curwen, a brood of six or eight black game. I believe these were the first seen anywhere in this district. I did not know certainly what they were at the time, but immediately wrote a note to Braithwaite Hodgson of Colt House; and his nephew, Braithwaite Hawkrigg, a day or two later, was the first to shoot two of them, which I am informed are cured, and are now in the possession of W. Gurnett of Sawrey. I have never heard of their having been introduced by any one here, and feel assured they came of their own accord. There are some now

about Colthouse Heights, and also in the lower parts of Hawkshead Moor, and probably at other places. Other birds have followed the larch plantations, as an instance, the crossbill, which as thou probably knows, has been pretty numerous in Henry Curwen's woods, though I am not aware that they bred here. I have pleasure in answering thy queries, and am, very respectfully, WILLIAM WILSON."

Considering how short a time these birds, the black game, have been here, it is remarkable how widely they have diffused themselves. As our beautiful district is visited by many strangers, it may interest some readers if I mention the names of the localities where they are found. At Cock Hag, betwixt Crook and Underbarrow; in the extensive larch woods at Lamb How, in Crosthwaite; and on the summit of Whitbarrow, a detached limestone mountain, presenting a grand rock escarpment to the lake tourist, as he approaches from Milnthorpe. Perhaps they are most numerous in the larch forest on the heights of Cartmel-fell. In the woods of Furness-fells, on the western side of the lake, they are also as far down, I am told, as Holker Hall, the seat of the Earl of Burlington. But our district is much better adapted for their residence now than it was formerly. At the beginning of the century, all our lateral valleys falling towards Morecambe Bay, were divided by bare heights, or only clothed by a scanty cover of juniper, heath or fern. Since the enclosure of the commons, large tracts of them have been planted, chiefly with larch, and now afford shelter and food to the new comers. It is remarkable, that within the period of my memory, the summit of Cartmel-fell, then a heathy waste, was tenanted by the common red grouse; it is now a larch forest, and occupied by black game. It is curious also that they did not come, till the country was, as it were, prepared for them. It would really appear that Nature, like a provident mother, whenever a change occurred in her wide domains, producing a state of things suitable to afford food and shelter and enjoyment to her irrational offspring, took care to inform them of it, and thither to direct their course. P.S.—Having ascertained that these birds "came of their own accord;" one is next curious to discover from whence they emigrated. But this can only be conjecture. The nearest locality where I have heard of any is Mell-fell, a round, wooded hill at Matterdale, in Cumberland, and more than twenty miles distant from where they were first seen with us. The rugged and lofty barrier of the Lake mountains also intervenes: still it is probable that they came from thence; for we have no black grouse within the same distance, either to the east, west, or south of us. At any rate, wherever they sprung from, they seem now firmly established; and will doubtless in future constitute a permanent feature in our Ornithology.—*W. Pearson; Border Side, near Bowness, October 30, 1850.*

A hybrid between a Cravat Canada Gander and a Bernicle Goose was bred on my premises last spring. I have never seen this cross before, though I have seen a hybrid between the white-fronted and bernicle geese in the Gardens of the Zoological Society in Regent's Park.—J. H. Gurney; Easton, Norfolk, November 7, 1850.

Occurrence of the fork-tailed Petrel (Thalassidroma Leachii) in the Isle of Wight.—I beg to inform you of the occurrence of a fork-tailed petrel on our shore. It was found dead on the beach at Lucombe Chine near this place. The specimen is now in the hands of Mr. Bacon, of Haslar, for preservation.—*S. Saxby, Jun; Bonchurch, Isle of Wight, November, 6, 1850.*

Occurrence of the Fork-tailed Petrel (Thalassidroma Leachii) at Brighton.—I have to-day seen a beautiful specimen of this bird, in the flesh, at Mr. Swaysland's at

Brighton, which was picked up dead on the shore a day or two since.—*J. B. Ellman ; Lewes, November 8, 1860.*

Occurrence of the Little Auk (Alca alle) at Crawley, Sussex.—A specimen of this bird was obtained last week at the above place, which is about twenty miles from the coast as the crow flies.—*Id.*

Note on the food of the Woodpigeon.—I examined this afternoon the crops of three woodpigeons, which I had shot in the morning, during a walk through a wood called the "Butcher's Nursery," close above the town. The two first birds I shot were young ones, about a month old; the last was an old one; the young ones were shot about 10 A.M., and the old one about half-past 1 P.M. The contents of the crop of the first young one, were nineteen beech-masts, and forty-one wheat seeds; the crop of the other young one contained forty-five beech-masts and a hundred and forty-one wheat seeds; and the crop of the old one, a hundred and forty-five beech-masts, and a hundred and one wheat seeds, chiefly with the husks on them. No other seeds of any description were within the crops.—*J. M. Jones ; Montgomery, North Wales, October 24, 1850.*

Food of a Freshwater Tortoise.—Seeing an enquiry in the 'Zoologist,' (Zool. 2954) respecting the food for a freshwater tortoise, from Mr. Birchall, I beg to state that it will thrive best on small bits of meat or very small fish, such as minnows, which it will pick to pieces very adroitly. I have no doubt that the species is *Chelodina longicollis* (C. Novæ Hollandiæ, *Bibr.*) I had one of this species living in a little pond or tank for a considerable time; and it was very curious to observe how accurately it graduated the quantity of air in the lungs; so that it was enabled to rest wholly submerged, excepting the anterior part of the head as far as the eyes, which remained constantly above the surface; and in that position it would continue motionless for half an hour or an hour together.—*Thomas Bell ; Selborne, November 4, 1850.*

Occurrence of the Porbeagle Shark off the Chesil Bank.—A specimen of *Lamna Cornubica* of Yarrell, the Porbeagle shark, was taken last week off the Chesil Bank, by the fishermen who were looking out for herrings. I at first took it to be *C. glaucus*, but on a more careful examination altered my opinion: it is called by the fishermen, round-nose; Cuvier's name is *squalus*. The following are the dimensions: length six feet; snout to eye, five inches; snout to dorsal, two feet two inches; base of dorsal, one foot; height, eleven inches; dorsal to commencement of caudal, three feet; eye, two inches in diameter; gape, when extended, eighteen inches. Colour dark gray, belly white. Teeth, three rows; one row much longer than the others. I have also lately taken two specimens of *Raja marginata*, and one of the green wrasse (*Labrus lineatus*), both rare fish.—*William Thompson ; 11, Frederick Place, Weymouth.*

Occurrence of Ray's Bream (Brama Raiti), and the Argentine (Scopelus Humboldtii) at Redcar.—Four fine specimens of Ray's bream have been found on the beach at this place during the last three weeks; one of which in my possession, measures twenty-three inches in length. Last March I found nineteen specimens of the Argentine, varying from three-quarters of an inch to two inches and three-quarters in length.—*T. S. Rudd; Redcar, November 4, 1850.*

Occurrence of Opigena fennica in England.—A single specimen of this Noctua, hitherto unknown in Britain, and principally found in Finland, has been taken in Derbyshire.—*Henry Doubleday; Epping, November 6, 1850.*

Insects impaled on Thorns.—The following fact may be interesting to some of your readers, as throwing, I think, some light on the question mooted at the Entomological Society, about insects impaled on thorns (*Zool.* 2962). When entomologizing on a bright but windy day in September, 1848, on the sand-hills at Exmouth, I saw an insect at some distance perched on the end of a blade of the long grass which covers the sand: hastening up to it, I found it to be a very fine and fresh specimen of *Agrotis valligera*, alive, and struggling on the thorny point of the grass, which had entered between the fore-legs, and could not be extracted without considerable force. The perfect condition of the insect precludes, I think, the idea of any other agency than the impetus of its own flight aided and diverted from its intended course by some gust of wind; for as this insect generally flies low in the day time, skimming over the tops of the grass, it is not hard to imagine that a sudden gust may have driven it on one of these blades; the hardness and penetrating power of which any one can testify, who has walked through them thinly clad. Within a day or two of this, I found several bees that had come by their death in the same way; these were stiff, and had evidently been dead some days, but were not in any way mutilated; the point of the grass had entered in these cases at the root of the wings.—*W. J. Bull; 6, Hagley Row, Birmingham, November 6, 1850.*

Occurrence of Cheimatobia borearia at Petty Pool Wood, Cheshire.—This insect is an abundant species in the above locality. The female is generally easily distinguished from that of *brumaria*. If there are any wings at all, the striga is nearer the centre of the anterior wing than in the latter species, both wings are equal in length; whereas in *brumaria*, the posterior wing is the shortest; *borearia* too, has longer and finer cilia than *brumaria*. I have seen one or two females without wings, and could scarcely feel certain to which species they belonged, had they not been taken in copulation. It was first captured this season in Petty Pool Wood, on the 27th of October. I and my brethren of the net in Warrington, have taken a number of the males, and shall be glad to supply those collectors who have not met with the insect.—*Nicholas Cooke; Warrington, November 7, 1850.*

Note on Hydræcia Petasitis.—My larvæ of this insect, taken last September, apparently nearly full grown, are still living, and look healthy, which proves that many of them are more than one year in coming to perfection, or else that the species is double brooded. The three pupæ found at the same time, changed to fine large moths in a few days.—*Id.*

Note on Lepidoptera, &c.—I can easily suppose an editor's patience must be sorely tried by MSS. of careless correspondents, and, therefore, neither wonder at nor complain of your castigation in the 'Zoologist' (Zool. 2899). I have not had leisure to recur to the subject before. Should what I now send be eligible for your pages, you will, I think, find it more carefully penned. The portion rejected from my August address, merely urged your readers to look carefully soon after Midsummer next year for *Xanthosetia Inopiana*, on the *Inula dysenterica*, as I found it numerous on that plant in damp localities, about the 6th of July, but so worn as to show me I was too late in the season. Am I solitary in my experience of the scarcity (comparative in all cases, and absolute in some) of the *Rhopalocera* this year? I have not seen one *Vanessa Cardui*, and even *Atalanta* is unfrequent. I am now taking petrificata and semibrunnea on the ivy, but nothing else worth naming.—*J. Allen Hill; Almondsbury House, October 10, 1850.*

Proceedings of the Entomological Society.

Nov. 4, 1850.—G. R. WATERHOUSE, Esq., President, in the chair.

The following donations were received, and thanks ordered to be given to the respective donors: The 'Zoologist' for November; presented by the Editor. 'Lecture on Blights,' by F. Plowley, Esq., M.D.; presented by the Author. 'Fauna Japonica, Auctore Ph. F. De Siebold; Crustacea, elaborante W. De Haan, 1850;' presented by Herr De Haan, Hon. For. M.E.S. 'Memoires de la Société des Sciences de l'Agriculture et des Arts de Lille, 1842—9;' presented by the Society. 'Enumération des Insectes qui Consommant les Tabacs,' by M. Guérin-Ménéville; 'Essai sur les Maladies des Vers à Soie,' by M. Guérin-Ménéville; 'Analyse des Expériences sur la Muscardine,' by M. Guérin-Ménéville; all presented by the Author.

The Rev. Joseph Green, Miss Stopford, and Mr. Thomas Thompson were balloted for and elected Subscribers of the Society.

Mr. Westwood mentioned that M. Guérin had observed that the structure of the blood in diseased silkworms, was found, when viewed under microscopes of high powers, to be considerably altered. The small granules, which in the healthy blood were found to be oval, or round; in the diseased blood became elongated, and then branched; thus, apparently turning from an animal into the vegetable substance known as muscardine.

Mr. Shepherd exhibited an Hermaphrodite *Nonagria Canne*, of which, however, both the antennæ were male.

Mr. S. Stevens exhibited some cocoons of a *Bombyx* from Columbia, in each of three of which he had found two pupæ. He also exhibited the four new species of Australian Coleoptera, *Clytus bicinctus*, *Saperda bilabilis*, *Cerambyx subcarnatus*. and *Agasma semicrudum*, described by Mr. Newman in the 'Zoologist.'

Mr. Stevens also exhibited some specimens of insect economy, brought from South Australia by Mr. Mossman.

Mr. J. F. Stephens exhibited specimens from Scotland, of *Dictyopterus Aurora*,

a beetle new to Britain, and *Tinea ochraceella*, of Tengstrom; the latter species had been found by Mr. Weaver in ants' nests.

Mr. Bond exhibited some rare Lepidoptera he had taken at Ventnor, in August, including *Agrotis lunigera*, *Catoptria pupillana*, *Depressaria caprella*, *rotundella*, *Douglasella*, *nanatella* and *pallorella*.

The President exhibited on behalf of Mr. G. Ransome, a very fine *Deilephila Celerio* recently taken at Ipswich.

Mr. W. F. Evans exhibited four specimens of a *Culex*, which had accidentally been enclosed in a letter received from Commander Pullen, dated Great Slave Lake, 28th June, 1850, in latitude 61 degrees. The great abundance and intolerable annoyance of these little pests in high latitudes, had been mentioned by Sir G. Back, in his account of the Arctic Land Expedition, in 1833; and by Sir John Franklin, in his account of his journey to the Polar Sea in 1819—22.

The President read a letter from M. Blisson, requesting from the members of the Society, information concerning certain British Coleoptera, to be incorporated in a work he was preparing on that order.

Mr. W. W. Saunders read a paper on Australian Longicorns, of which the following is an abstract. The paper is accompanied by two coloured plates.

The author observed, that a great many interesting forms among the smaller Longicorns having, during the last few years, been brought to this country from our Australian colonies, he had thought that an account of them would be interesting to entomologists, particularly if he combined with them, figures and short descriptions of some of the interesting nearly allied forms, which had previously only been described, but wanted good portraits to point out their structure.

First Division. *Wings not abbreviated; eyes rounded or ovate.*

Genus—ENCHOPTERA.

Nearly allied to *Macrones* of Newman, but differs in the longer thorax which is nearly smooth on the sides, and the longer and pointed snout.

Sp. 1. ENCHOPTERA APICALIS.

Dark chesnut-brown, with the forehead and apices of the femora black, the three terminal joints of the antennæ yellow, and the elytra yellowish brown.

Length $\frac{7}{16}$ inch.

From Van Diemen's Land.

Sp. 2. ENCHOPTERA NIGRICORNIS.

Head pale chesnut-brown: antennæ pitchy-brown inclining to black: elytra pale chesnut-brown, clothed with yellowish pubescence: legs pitchy-brown with the anterior and middle thighs yellowish brown.

Length $\frac{1}{2}$ inch.

From New South Wales.

Genus—MACRONES, *Newman*, Entomologist, p. 33.

Sp. 1. MACRONES EXILIS, *Newman*.

Black, with the sides of the thorax dark rufous brown: elytra yellowish brown, with four darker elevated ridges, and the posterior tarsi white.

Sp. 2. *MACRONES RUFUS*.

Rufous brown, with a broad ring of black on the first joint of the antennæ, and another of the same colour on the hind femora.

Length $1\frac{1}{10}$ inch.

From Hunter's River.

Genus—*BRACHOPSIS*.

Differs from *Macrones* in the less projecting head, unarmed thorax, and shorter and stronger legs, besides other characters.

Sp. 1. *BRACHOPSIS CONCOLOR*.

Dark chesnut-brown, with the tips of the first joint of the antennæ, forehead, face, and a longitudinal line along the thorax, black: elytra with four elevated ridges.

Length $\frac{1}{2}$ inch.

From Van Diemen's Land.

Genus—*STENODERUS*, *Dejean*.Sp. 1. *STENODERUS MACULICORNIS*.

Dull orange, with the antennæ, except the fourth, fifth and sixth joints, black, the latter nearly white, tipped with black.

Length $\frac{1}{10}$ inch.

From the north and north-west coasts of New Holland.

Genus—*PSILOMORPHA*.

Having some resemblance to Mr. Shuckard's genus *Stephanops*, but abundantly distinct by the less projecting head, ovate eyes, and other characters.

Sp. 1. *PSILOMORPHA TENUIPES*.

Pale chesnut-brown, with the eyes, first joint, and tips of the other joints, of the antennæ, and legs black: elytra striate.

Length $\frac{1}{10}$ inch.

From New Holland.

Second Division. *Wings not abbreviated; eyes reniform.*

Genus—*STEPHANOPS*, *Shuckard*, Ent. Mag. v. 510.Sp. 1. *STEPHANOPS NASUTUS*, *Shuckard*.Genus—*ORODERES*.

Having a general resemblance to the *Macrones* group, but essentially differing in the shape of the eyes, structure of antennæ, &c.

Sp. 1. *ORODERES HUMERALIS*.

Black, with a purplish metallic tint, except the elytra, which are orange at the base, and the abdomen, which has a bright steel-blue tint.

Length $\frac{1}{2}$ inch.

From New South Wales.

Genus—*HEPHÆSTION*, *Newman*.

Sp. 1. *HEPHÆSTION OCREATUS*, *Newman*, Entomologist, p. 10.

Genus—*BIMIA*, *White*.

Sp. 1. *BIMIA FEMORALIS*.

Closely resembles *Bimia bicolor* of White (in the 'Illustrated Proceedings of the Zoological Society'), but will be found to differ in the narrow instead of broad black band on the thorax, and in the forehead and middle femora being ochraceous instead of black.

Genus—*AKIPTERA*.

Somewhat allied to Mr. Newman's genus *Brachytria*, but differing in the length and structure of the antennæ, and other important characters.

Sp. 1. *AKIPTERA SEMIPLAVA*.

Head and thorax hairy, yellow and black: elytra hairy, dull yellow, with the apical half black.

Length $\frac{7}{16}$ inch.

From Australia.

Genus—*BRACHYTRIA*, *Newman*.

Sp. 1. *BRACHYTRIA GULOSA*, *Newman*, Annals Nat. Hist. v., p. 6.

This species varies much, the dorsal spot is sometimes wanting, and occasionally the three spots are united into one.

Third Division. *Wings much abbreviated.*

Genus—*HESTHESIS*, *Newman*.

Sp. 1. *HESTHESIS ORNATA*.

The smallest species of the genus, and most nearly allied to *H. variegatus* of Newman, the *Molorchus variegatus* of Fabricius. Head and thorax black: elytra dark umber brown, with darker shoulders: legs and tarsi dull chestnut-brown.

Length $\frac{1}{2}$ inch.

From Hunter's River.

Genus—*AGAPETE*, *Newman*.

Sp. 1. *AGAPETE CARISSIMA*, *Newman*, Zoologist, p. 1017.

The singular conformation of the antennæ, these organs being twelve-jointed, immediately distinguishes the genus from others of the *Molorchideæ*.

A paper by Mr. Hewitson was then read, containing descriptions of some new *Papilionidæ*, of which the following is an abstract. The paper is accompanied by two coloured Plates.

"Many of our true *Papilios* which have now separate names, will, I believe, if better known, prove to be only sexually and not specifically distinct.

"*Papilio Tullus* proves to be the female of *P. Sesostris*.

"*Papilio Proteus* and *Arcas*, are male and female; and I have no doubt that *P. Pirithous* is the ♀ of *P. Lycophron*, and *P. Acamas* the ♀ of *P. Thersites*."

PAPILIO BOLIVAR.

Allied to *P. Vertumnus*. Anterior wings deep black, with an irregular silvery green patch, from the inner margin to near the middle of the wing: posterior wings black, with a dark crimson patch at the lower half of the cell.

Exp. 3 $\frac{1}{2}$ inch.

HAB. Amazons.

PAPILIO COLUMBUS.

Allied to *P. Dolicaon*. Anterior wings cream-colour, the outer margin and a large space at the apex black, and the costa at the base bordered with black: posterior wings dentated, with a narrow linear tail; cream-colour, with the outer margin black.

Exp. 3 $\frac{1}{2}$ inch.

HAB. Amazons.

CALLITHEA BATESII.

Anterior wings deep purple, the base orange, apex and outer margin shining green: posterior wings deep purple, the base orange, and the submarginal line green.

Exp. 2 $\frac{1}{2}$ inches.

HAB. Amazons.

PAVONIA TELEMACHUS.

Allied to *P. Atlas*. Anterior wings brown, glossed with purple, with the margin and broad submarginal line reddish-brown: posterior wings brown, with a very broad outer margin of orange.

Exp. 6 inches.

HAB. Rio de Janeiro.

Mr. Westwood read the first part of a paper on the genus *Evania*, supplementary to his paper in the third volume of the Society's Transactions.—*H. T. S.*

APPENDIX

TO

THE ZOOLOGIST

FOR 1850.

ART. I.—*Characters of undescribed Diptera in the British Museum.*

By FRANCIS WALKER, Esq., F.L.S.

TABANUS PYRAUSTA, fem.

Ferrugineus, abdomine nigro, segmentorum marginibus posticis fulvis, palpis antennis pedibusque nigris, alis fulvis.

Head ferruginous, tawny and clothed with dark tawny hairs beneath: eyes bronzed, parted above by a very narrow interval; the facets small, but much increasing in size towards the inner fore border: sucker black, clothed with black hairs; lancets dark ferruginous; palpi black, covered with black down: feelers black; third joint slightly convex beneath, armed above with a short stout horn, which forms an acute angle and tapers gradually from the base to the tip; compound joint slightly curved upward, much shorter than the third joint: chest and breast adorned with a bright ferruginous covering, the latter rather paler than the former and clothed with tawny hairs: abdomen black, obconical, clothed with short black hairs, much longer and a little broader than the chest; hind borders of the segments bright tawny: legs black, clothed with short black hairs; foot-cushions tawny: wings bright tawny; wing-ribs and veins ferruginous; curve of the tip cross-vein slight, not angular; scales tawny; poisers red. Length of the body 11 lines; of the wings 22 lines.

Java.

TABANUS TENENS, fem.

Cinereus, thoracis lateribus abdomineque ferrugineis, hujus vitta cinerea, antennis pedibusque ferrugineis, femoribus cinereis, tarsis piceis, tarsis anticis nigris, alis cinereis basi costa nervorumque marginibus flavo-fuscis.

Body gray: head adorned above with a tawny covering, which is interrupted by a club-shaped pitchy mark, paler and clothed with yellow hairs beneath: eyes bronzed, parted above by a moderate interval; the facets very small, but slightly increasing in

size towards the inner fore border: sucker black; lancets ferruginous; palpi tawny, thickly clothed with very short black hairs: feelers ferruginous; first and second joints tipped with black; third joint angular beneath, armed above with a very broad, rather short horn, whose angle is acute; compound joint hardly curved upward, about half the length of the third joint: sides of the chest ferruginous: breast clothed with pale yellow hairs: abdomen ferruginous, obconical, paler beneath, thinly clothed with short black hairs; a slight gray stripe along the back: legs ferruginous; hips and thighs tinged with gray, clothed with tawny hairs; shanks and feet clothed with very short black hairs; feet pitchy; claws and fore feet black: wings gray, clouded with yellowish brown at the base, beneath the fore border and along the veins; brands brown; wing-ribs ferruginous; veins black, ferruginous at the base; curve of the tip cross-vein inclining to an obtuse angle; scales gray, with tawny borders; poisers ferruginous, with yellow knobs. Length of the body 11 lines; of the wings 22 lines.

Parà.

TABANUS ALBO-ATER, fem.

Niger, albo-hirtus, capite albo, thoracis lateribus ferrugineis, pectore cano, abdomine fasciculis albis trivittato, antennis pedibusque nigris, alis cinereis.

Body black: head white, thickly clothed beneath with white hairs; a black ridge along the crown: eyes brassy, parted above by an unusually narrow interval; facets very small, increasing in size towards the inner fore border: sucker black; lancets ferruginous; palpi tawny, clothed with very short black hairs: feelers black; first joint clothed with short black hairs; third joint slightly convex beneath, armed above with a short stout horn, whose angle is acute; compound joint slightly curved upward, much shorter than the third joint: chest tinged with gray, dark ferruginous on each side; breast hoary, clothed with white hairs: abdomen obconical, longer than the chest, adorned above with tufts of white hairs, which form three rows of spots; the side spots are on the fore borders, the middle spots on the hind borders of the segments; under-side gray, clothed with black hairs; hind borders of the segments white, clothed with white hairs; claws ferruginous, with black tips; foot-cushions tawny: wings gray; brands yellowish brown; wing-ribs pitchy; veins black, pitchy at the base and beneath the fore border; curve of the tip cross-vein inclining to a very obtuse angle; scales gray, with pitchy borders; poisers tawny. Length of the body 9 lines; of the wings 18 lines.

Parà.

TABANUS VIRIDI-FLAVUS, fem.

Viridi-flavus, abdominis apice fulvo, antennis fulvis basi flavis, pedibus viridi-flavis, alis albidis.

Body whitish yellow, tinged with bright pale green, thick and convex like *T. maculatissimus* and *T. ochroleucus*: head clothed beneath with pale yellow hairs: eyes red, parted by a narrow interval on the crown; the facets larger than usual, especially towards the inner fore border: sucker tawny, ferruginous towards the tip; lancets bright emerald green; palpi yellow, clothed with short pale hairs: feelers tawny; first and second joints yellow; third joint very convex beneath, its angle above shal-

low and indistinct, having the hind side convex, the fore side slightly concave; compound joint green, tapering, slightly curved upward, remarkably small, while the third joint is proportionably large, the latter being more than four times the length, six times the breadth near the base, and thrice the breadth near the tip, of the former: chest and breast clothed with pale yellow hairs: abdomen obconical, tawny towards the tip, longer than the chest: legs yellow, clothed with short pale hairs, tinged with green; claws black; tips of the fore feet tawny: wings whitish; wing-ribs and veins green; cross-veins darker; angle of the tip cross-vein obtuse, distinct; scales whitish, with pale yellow borders; poisers green. Length of the body 6 lines; of the wings 13 lines.

Brazil.

TABANUS FULLO, fem.

Canus, capite subtus albo, abdominis segmentorum marginibus posticis ferrugineis, palpis antennis basi pedibusque fulvis, femoribus canis, tarsis piceis, alis albidis.

Body hoary, thickly clothed with short pale yellow hairs: head white beneath; a pitchy forked mark on the crown: eyes bronze-black, clothed with short pale yellow hairs, parted above by a rather broad interval; all the facets very small: sucker black; lancets pale ferruginous; palpi tawny, rather long and slender, three-fourths of the length of the sucker: first and second joints of the feelers tawny, beset with short black bristles: abdomen obconical, very much longer than the chest, slightly tinged with tawny; hind borders of the segments pale ferruginous: legs tawny, clothed with pale yellow hairs; a hoary tinge on the hips and the thighs; feet ferruginous, with pitchy tips; claws black: wings whitish; wing-ribs and veins tawny, the latter black towards the tips; angle of the tip cross-vein obtuse, very distinct, its stump rather longer than its inner side; scales whitish, with pale yellow borders; poisers yellow, their knobs pitchy towards the base. Length of the body $6\frac{1}{2}$ lines; of the wings 14 lines.

TABANUS FENESTRATUS, fem.

Rufus, abdominis apice piceo, palpis antennis basi pedibusque ferrugineis, tarsis piceis, alis limpidis dimidio basali nigro-fuscis bifenestratis.

Body red: head clothed beneath with pale yellow hairs: eyes black, parted above by a broad interval; facets very small: sucker black; lancets and palpi ferruginous: first and second joints of the feelers ferruginous: breast clothed with pale yellow hairs: abdomen obconical, pitchy towards the tip, longer than the chest: legs dark ferruginous, clothed with short black hairs; feet pitchy; claws ferruginous towards the base; foot-cushions tawny: fore shanks broad, spindle-shaped, like those of *T. latipes* of Macquart: wings colourless, dark brown for full half the length from the base, with the exception of two colourless spots, one near the base very small, the other larger; wing-ribs pitchy; veins black; curve of the tip cross-vein slight, a little inclining to the angular form; borders of the scales pitchy; poisers tawny. Length of the body 6 lines; of the wings 14 lines.

TABANUS VAGUS, fem.

Fulvus, thorace trivittato, abdomine antennisque ferrugineis, pedibus fulvis, tarsis ferrugineis, alis fuscis apice marginisque postico cinereis.

An aberrant species. Head dull tawny on the crown, bright tawny in front, whitish yellow and clothed with pale yellow hairs beneath: a shining ferruginous ridge on the crown, wider in front: eyes coppery, parted above by a narrow interval; the facets as usual: sucker pitchy; lancets pale ferruginous; palpi tawny, clothed with very short black hairs: feelers pale ferruginous; third joint slightly angular beneath, armed above with a very small and short acute horn, whose tip is beset with little black bristles: chest dark tawny, with three rather indistinct stripes: breast tawny, clothed with pale yellow hairs: abdomen ferruginous, obconical, paler beneath, near twice the length of the chest: legs tawny, clothed with very short black hairs; hips and thighs clothed with pale yellow hairs; feet ferruginous, black towards the tips; foot-cushions tawny: wings brown, inclining to gray at the tips and along the hind borders; wing-ribs ferruginous; veins pitchy, ferruginous at the base; angle of the tip cross-vein very distinct, slightly obtuse, its stump much shorter than the inner side; scales ferruginous; poisers tawny, with yellow knobs. Length of the body 6 lines; of the wings 13 lines.

Hong-Kong.

TABANUS BASI-VITTA, fem.

Fuscus, pectore cinereo, abdomine ferrugineo basi nigro vittato, antennis ferrugineis basi fulvis, pedibus ferrugineis, tarsis nigris, alis cinereis basi costaque fuscis.

Covering of the head dark tawny above, paler in front and beneath, where it is clothed with short black hairs; a pitchy ridge along the crown; eyes bronzed, parted above by a moderate interval; facets as usual: sucker black; lancets ferruginous; palpi tawny, rather long, thickly clothed above with short black hairs: feelers ferruginous; first and second joints dark tawny; third joint slightly convex beneath, armed above with a moderately long and very acute horn; compound joint tapering, curved upward, rather more than half the length of the third joint: chest brown, clothed with short ferruginous hairs: breast gray, clothed with short black hairs: abdomen ferruginous, obconical, darker towards the tip, nearly twice the length of the chest, clothed with very short black hairs, adorned above at the base with a very short black stripe: legs very dark ferruginous, clothed with short black hairs; feet black; foot-cushions tawny: wings gray, tinged with brown at the base and along the fore border; brands dark brown; wing-ribs pitchy; veins black, pitchy at the base and beneath the fore border; scales gray, with pitchy borders; poisers ferruginous, with yellow knobs. Length of the body $7\frac{1}{2}$ lines; of the wings 14 lines.

Parà.

TABANUS VIDUUS, fem.

Cinereus, abdomine ferrugineo apice nigro, palpis antennisque nigris horum articulo 3^o piceo, pedibus piceis, femoribus nigris, alis cinereis basi et ad costam fuscis.

Body gray: head dark grayish tawny above, hoary and clothed with short hoary hairs beneath; a fringe of very short black bristles behind the eyes; a pitchy narrow

ridge on the crown: eyes bronzed, parted above by a moderate interval; facets as usual: sucker, lancets and palpi black; palpi tinged with dark tawny, clothed with very short black hairs: feelers black; first and second joints beset with very short black bristles; third joint pitchy, slightly convex beneath, armed above with a rather long acute horn; compound joint tapering, curved upward, more than half the length of the third joint: breast clothed with pale tawny hairs: abdomen obconical, very dark ferruginous, paler beneath, black towards the tip, clothed with short black hairs, much longer than the chest: legs pitchy, clothed with very short black hairs; hips and thighs black, tinged with gray, clothed with pale tawny hairs; claws and tips of feet black; foot-cushions tawny: wings gray, tinged with brown at the base, beneath the fore border and about the brand, which is dark brown; wing-ribs and veins black; veins pitchy along the fore border; curve of tip cross-vein inclining to an obtuse angle; scales gray, with pitchy borders; poisers pitchy. Length of the body $8\frac{1}{2}$ lines; of the wings 16 lines.

Parà.

TABANUS DESERTUS, fem.

Cinereus, thoracis lateribus fulvis, pectore cano, abdominis fusco maculis trigonis fulvis trivittato lateribus ferrugineis ventre fulvo, pedibus fulvis, alis cinereis.

Body gray: head dark above, white and clothed with white hairs beneath; a pitchy shining convex mark in front of the crown: eyes bronze-black, parted above by a rather broad interval; facets as usual: sucker black; palpi white, clothed with short black hairs; feelers ferruginous; first and second joints clothed with short black hairs; third joint convex beneath, armed above with a very short and obtuse horn; compound joint tapering, black, curved upward, much shorter than the third joint: sides of the chest dark tawny: breast hoary, clothed with white hairs: abdomen dark brown, much longer than the chest, linear till near the tip, which is rounded, thinly clothed with short pale yellow hairs, which are chiefly on the hind borders of the segments, tawny beneath, somewhat ferruginous on each side above and adorned with three rows of triangular tawny spots; middle spots paler than the side spots, which are oblique: legs tawny, clothed with very short black hairs; hips and thighs clothed with hoary hairs: claws and tips of feet black: wings gray; brands brown; wing-ribs pitchy; veins black, pitchy at the base and along the fore border; curve of the tip cross-vein slightly inclining to an obtuse angle; scales gray, with pitchy borders; poisers tawny. Length of the body 5 lines; of the wings 10 lines.

Parà.

TABANUS ADVENA, fem.

Niger, capite ferrugineo, thoracis lateribus abdomineque fulvis, hujus apice piceo, antennis ferrugineis, pedibus fulvis, tarsis anticis nigris, alis albidis.

Body black: head ferruginous, golden yellow above the feelers, thinly clothed beneath with pale yellow hairs: eyes red, parted by a moderately broad interval; the facets as usual: sucker pitchy; lancets ferruginous; palpi very pale yellow: feelers bright pale ferruginous; third joint slightly convex beneath, its upper side forming an extremely shallow and obtuse angle; compound joint tapering, curved upward, shorter than the third joint: chest and breast thinly clothed with pale yellow hairs;

sides tawny: abdomen tawny, slightly obconical, pitchy towards the tip, very much longer than the chest, clothed with short pale yellow hairs: legs tawny, clothed with very short pale hairs; feet ferruginous towards the tips; claws and fore feet black: wings whitish; wing-ribs and veins tawny; veins black towards the tip; angle of the tip cross-vein distinct, slightly obtuse, its stump as long as its shorter side; scales whitish yellow, with pale yellow borders; poisers pale yellow. Length of the body $4\frac{1}{2}$ lines; of the wings 8 lines.

TABANUS SARBA, *White, MSS., fem.*

Fuscus, thoracis vittis quatuor pectoreque canis, abdomine piceo, ventre cano segmentorum marginibus posticis fulvis, pedibus fulvis, femoribus cinereis, tarsis nigris, alis subcinereis.

Head gray above, white and thickly clothed with long white hairs beneath; an obclavate black shining mark on the crown: eyes bronzed, parted above by a moderate interval: sucker pitchy, much longer than the head; lancets ferruginous; palpi tawny, clothed with very short black hairs: feelers black; first and second joints dark tawny, clothed with short black bristles; third joint indistinctly angular beneath, armed above with a short, very stout horn, which forms a slightly obtuse angle, whose hind side is slightly convex, its fore side is very short, and forms a very obtuse angle with the continuation of the third joint to the tip; compound joint very slightly curved upward, shorter than the third joint: chest dark brown, adorned with four hoary stripes, a pair on each side connected by an oblique band: breast hoary, clothed with white hairs: abdomen pitchy, slightly obconical, clothed with hoary and black hairs, very much longer than the chest; under-side hoary; hind borders of the segments tawny on each side and beneath: legs tawny, clothed with white hairs; hips and thighs gray; shanks and feet clothed with very short black hairs; feet black; foot-cushions tawny: wings pale gray; brands dark brown; wing-ribs pitchy; veins black, pitchy at the base and along the fore border; tip cross-vein nearly straight, its usual curve being very indistinct; scales gray, with pitchy borders; poisers pitchy. Connects Tabanus with Pangonia. Length of the body 6 lines; of the wings 12 lines.

New Zealand.

TABANUS OPLUS, *White, MSS., mas.*

Fuscus, pectore cano abdomine ferrugineo vitta interrupta nigra ornato, antennis pedibusque fulvis, tarsis fuscis, alis subcinereis.

Head tawny in front, pale yellow and clothed with white hairs beneath: eyes bronzed, meeting on the crown; facets small on each side, large above, but not forming two distinct regions: sucker black; lancets tawny; palpi yellow, clothed with black hairs: feelers dark tawny; first and second joints clothed with black bristles; third joint convex beneath, armed above with a very short horn, which forms a right angle; compound joint straight, tapering, longer than the third joint: chest and breast thickly clothed with tawny hairs; chest brown; breast hoary: abdomen ferruginous, obconical, a little shorter and broader than the chest, clothed with tawny hairs and at the tip with a few black hairs, adorned above with a broad black stripe,

which is interrupted on the hind border of each segment : legs tawny ; hips and thighs clothed with pale yellow hairs ; shanks and feet beset with very short black hairs ; feet brown above ; claws black, tawny at the base ; foot-cushions pale tawny : wings pale gray ; wing-ribs tawny ; veins pitchy, tawny at the base and along the fore border ; curve of the tip cross-vein inclining to an obtuse angle ; in one wing of the specimen described the angle is more distinct than in the other, and is accompanied by a short stump ; poisers tawny, with pitchy knobs. Length of the body 4 lines ; of the wings 9 lines.

New Zealand.

TABANUS IMPAR, mas. et fem. ?

Mas.—*Niger, thoracis lateribus ferrugineis, abdomine ferrugineo vitta brevi dorsali fascisque nigris fasciis flavis et maculis trigonis fulvis ornato, antennis nigris basi fulvis, femoribus nigris, tibiis fulvis, tarsis piceis, alis cinereis.* Fem. ?
—*Fuscus, thoracis lateribus vittisque tribus fulvis, pectore cano, abdomine fulvo apice piceo, pedibus fulvis.*

Mas.—Head black, clothed beneath with pale yellow hairs : eyes black ; facets small, but slightly increasing in size towards the crown : sucker black ; lancets yellow ; palpi pale tawny, clothed with very short black hairs : feelers black ; first and second joints very dark tawny, thickly clothed with black hairs, their angles unusually prominent ; third joint slightly convex beneath, armed above with a stout and moderately long horn, which forms an acute angle ; compound joint tapering, hardly curved upward, a little shorter than the third joint : chest and breast black, clothed with pale tawny hairs ; sides pale ferruginous, beset with a few black hairs : abdomen ferruginous, obconical, hardly longer than the chest, clothed with pale tawny hairs ; second segment adorned above with a black middle stripe ; fore borders of the third and following segments black, each adorned with a tawny triangular middle spot, which rests on a narrow pale yellow band extending along the hind border : hips and thighs black, clothed with tawny hairs ; tips of the thighs tawny ; shanks tawny, clothed with very short hairs ; hind shanks ferruginous, clothed with long tawny hairs ; feet pitchy, clothed beneath with ferruginous down ; claws black ; foot-cushions tawny : wings gray ; wing-ribs pitchy ; veins black, pitchy at the base and along the fore border ; brands dark brown ; curve of the tip cross-vein extremely slight ; scales gray, with pitchy borders ; poisers tawny, with pitchy knobs. Fem. ?—Head tawny above, whitish beneath : eyes bronzed, parted above by a rather broad interval ; facets very small ; third joint of the feelers forming a very obtuse angle beneath, its horn shorter than that of the male ; compound joint slightly curved upward, a little longer than the third joint : chest tawny, its disk brown, adorned with three tawny stripes ; breast hoary, clothed with pale yellow hairs : abdomen dull tawny, obconical, pitchy towards the tip, clothed with pale yellow hairs, which are chiefly on the hind borders of the segments, about twice the length of the chest : legs tawny, clothed with short black hairs ; hips and thighs clothed with pale yellow hairs ; feet pitchy towards the tips ; foot-cushions tawny ; claws black, tawny at the base. Length of the body $5\frac{1}{4}$ —6 lines ; of the wings 13—14 lines.

New Zealand.

TABANUS TRUNCATUS, fem.

Fuscus, vittis tribus cinereis, lateribus pectoreque canis, abdomine cinereo fasciis sub-interruptis fuscis ornato, antennis nigris basi piceis, pedibus fulvis, femoribus tarsisque anticis nigris, alis cinereis basi et ad costam subfulvis.

Head gray above, hoary and clothed with black and white hairs beneath: eyes bronzed, parted above by a very broad interval; all the facets very small: sucker black; lancets pale ferruginous; palpi tawny, with a hoary tinge, clothed with short black hairs: feelers black, adorned with a hoary tinge; first and second joints pitchy, clothed with short black hairs; third joint slightly convex beneath, rather more convex and indistinctly angular above; compound joint slightly tapering, almost straight, shorter than the third joint, its divisions not very compact: chest dark brown, adorned with three indistinct gray stripes; sides and breast hoary: abdomen gray, obconical, a little longer and broader than the chest; fore border of each segment adorned with a dark brown band, which is almost interrupted in the middle: legs tawny, clothed with short tawny hairs; feet towards the tips, claws, fore thighs and fore feet black; foot-cushions tawny: wings gray, with a slight tawny tinge at the base and along the fore border; brands pale brown; wing-ribs pitchy; veins black, pitchy at the base and along the fore border; curve of the tip cross-vein inclining to an obtuse angle; scales gray, with pitchy borders; poisers pitchy. Length of the body $3\frac{1}{4}$ lines; of the wings 10 lines. An aberrant species.

New Zealand.

FRANCIS WALKER.

ART. II.—*Descriptions of Two New Species of Tineidæ.*

By JOHN SIRCOM, JUN., Esq.

GELECHIA ACUMINATELLA.

Exp. $\frac{1}{4}$ inch. Anterior wings ashy brown, acutely terminated, with a very indistinct angulated fascia towards the apex; posterior wings and cilia ashy: head and palpi rather paler; antennæ dark brown: hind legs ashy, with dark spots.

July 28th, Brislington. Two specimens.

GELECHIA PULLIGINELLA.

Exp. $4\frac{1}{2}$ lines. Anterior wings of an uniform dark brown, with a row of deeper coloured spots round the apical margin, and a second round the middle of the fringe; posterior wings ashy; cilia brown: head ashy; antennæ dark brown: hind legs ashy.

July, Durdham Down. Two specimens.

JOHN SIRCOM, JUN.

Brislington.
December 18, 1849.

ART. III.—*A Concise Abstract of Zeller's Monograph of the Genus Coleophora, published last December, in the fourth volume of the 'Linnæa Entomologica' (followed by a list of the known British Species).* By H. T. STANTON, Esq.

THE genus *Coleophora* is one of the most easily defined of the smaller *Tineidæ*. In the larva state they are true miners, since they feed only on the inner substance of the leaves, but at the same time they inhabit a tubular house, which, like the true case-bearers, they can move about freely. The perfect insects, which have narrow, lanceolate, posterior wings, with very long cilia, are best characterised by the antennæ and abdomen: the former are clothed with scale-hairs on the basal joint, which, if not prolonged into a tuft, are at least longer on the front and stick out; not uncommonly is the lower part of the lash of the antennæ clothed with similar scale-hairs. The abdomen of a *Coleophora* has on the back of most segments two bald places, as in no other known *Tineidæ*; but this character is hardly perceptible after death.

Zeller divides the group into two genera, *Coleophora* and *Goniodoma*; but the latter at present contains only one species, the *auroguttella* of Fischer von Röslerstamm.

The following table will be found to simplify the naming of specimens:—

A. METALLOSETIA, St. (*Damophila*, Z.)

Anterior wings brilliantly metallic greenish or bronze, posteriorly coppery and violet. Antennæ above the basal joint with metallic hairy scales, which, according to the species, extend over a greater or less number of joints, and sometimes occur only very sparingly. (Species 1—9).

B. PORRECTARIA, Haw., St. (*Eupista*, H., Z.)

Anterior wings not metallic, only with pale shining or dull long-lines (not black with a white costa). Antennæ richly clothed with hairy scales, except at the end.

- a. Anterior wings long-pointed, almost hooked. Antennæ pectinately haired to near the apex. (Species 10 and 11).
- b. Anterior wings generally long-pointed, not with recurved apices; ground-colour ochreous yellow. Antennæ with hairy scales. (Species 12—16).
- c. Anterior wings long-hooked, with recurved apices; with fine shining white long-lines. Antennæ with hairy scales. (Species 17 and 18).

C. APISTA, H., Z. (*Porrectaria*, St. ex. p.)

Anterior wings not with metallic, but with yellow or whitish ground colour, pointed, rarely hooked. Antennæ with a tuft of hair at the basal joint; lash generally quite bare, only on the lower joints is frequently a very slight (hardly perceptible) thickening from scales.

- a. Anterior wings merely pointed, yellow, with white—generally silvery—longitudinal lines and streaks (only No. 31 has them almost dull).
 - a. Near the costa is a silvery long-streak converging towards it. (Species 19 and 20).
 - β. The silvery streak lies on the costa itself, and does not reach the base. (Species 21 and 22).
 - γ. The silvery streak as in β, but it does reach the base. (Species 23—31).

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- b. Anterior wings merely pointed, yellow, with white, hardly shining costal line, and frequently a fine white line on the disk and one in the fold of the wing. (Species 32—42).
- c. Anterior wings on a whitish ground, veined or dusted.
 - a. Hardly pointed. (Species 43—48).
 - β. Long-pointed, all the nerves with dark lines. (Species 49 and 50).

D. COLEOPHORA, H., Z. (*Astyages*, *Steph.*)

Anterior wings not metallic, pointed, rarely almost hooked. Antennæ (only in No. 52 richly haired) in a few species with a slight thickening from scales above the basal joint, otherwise with the lash naked, *never* with a tuft of hairs at the basal joint.

- a. Anterior wings unicolorous, with metallic long-lines. Antennæ short and thick. (Species 51).
- b. Anterior wings unicolorous, black-brown, brown-gray or yellow, with sharp white costal line (only No. 56 has a hardly perceptible fold line). Antennæ bare, only in No. 52 scale hairy.
 - a. Anterior wings black-brown or brown-gray. (Species 52—54).
 - β. Anterior wings yellow. (Species 55 and 56).
- c. Anterior wings with a costal line; posterior discoidal line and fold line white, on a yellowish or brownish yellow ground. Lash of the antennæ naked.
 - a. ♀ with shorter, very long-pointed anterior wings. (Species 57—59).
 - β. ♀ like the ♂ in the form of the wings. (Species 60—62).
- d. Anterior wings pointed (in No. 70 hooked); all the nervures, or at any rate those which are near the costa, dark-coloured, on a white, whitish or yellowish ground.
 - a. No dark scales between the veins.
 - † The dark veins generally as sharp lines. (Species 63—68).
 - †† Anterior wings indistinctly lined with thicker veins, especially the subcostal one. (Species 69—71).
 - ††† The veins faint, often only perceptible towards the costa: small species. (Species 72—76).
 - β. With scattered dark scales, especially between the veins. (Species 76—88).
- e. Anterior wings slightly pointed, on a whitish unveined ground, richly dusted with dark colour. (Species 89).
- f. Anterior wings slightly pointed, quite unicolorous or with the costa paler, but not strongly distinct from the ground-colour. (Species 90—105).

The species marked thus * were only known to Zeller by descriptions or figures.

Sp. 1. *MAYRELLA*, *Hübner* (*SPISSICORNIS*, *Haw.*)

Readily distinguished from the other metallic species by the apical half of the antennæ being strong, annulated black and white; *Hieronella*, which it resembles in this respect, has the antennæ only thickened for a *third* of their length, whereas in *Mayrella* the basal half is thickened.

Rare on the Continent, but widely dispersed.

Sp. 2. *HIERONELLA*, *Z.*

Distinguished from *Mayrella* as above mentioned, perhaps not specifically distinct.

One specimen, taken by Herr Zeller, near Syracuse.

Sp. 4. *DEAURATELLA*, *Lienig.*

This and the following metallic species have no annulations on the antennæ, but are yet distinguished by the antennæ, thus, *deauratella*, *alcyonipennella* and *paripennella* have the apices white; *deauratella* has a steel-blue thickening of the antennæ above the basal joint, as long as the basal joint; *alcyonipennella* has only the slightest trace of this thickening on the three first joints of the antennæ; and *paripennella* has no thickening at all: *deauratella*, which is larger than *Mayrella*, has the last sixth of the antennæ white; *alcyonipennella* resembles *Mayrella* in size, and has also the last sixth white; *paripennella* has the last *fourth* white, is much less brilliant in the colour of the anterior wings than the other allied species, and entirely destitute of the cupreous tinge at the apex. "The two species, *fuscicornis* and *cuprariella*, have unicolorous brown antennæ; on the whole, in *fuscicornis* of the form of *alcyonipennella*, and in *cuprariella* like *deauratella*."

Deauratella occurs in moist meadows, in May and June.

Sp. 5. *CUPRARIELLA*, *Z.*

From Asia Minor and Vienna, scarce; perhaps not specifically distinct from *deauratella*.

Sp. 6. *FUSCICORNIS*, *Z.*

Also from Asia Minor; one specimen.

Sp. 7. *ALCYONIPENNELLA*, *Kollar.*

Not scarce in many parts of Germany: it frequents moist meadows in May and June, frequenting flowers, especially *Ranunculus acris* in the afternoon.

The Linnean *Frischella* (*Curtis's Trifolii*) appears distinct from this, being much larger and remarkably glossy: the structure of the antennæ is, however, precisely that of *alcyonipennella*.

Sp. 8. *PARIPENNELLA*, *F.-v.R.*

A scarce species: occurs in May and July, among alder-busdes.

Sp. 10. ONOPORDIELLA, Mann.

Among the species with thickly-haired antennæ and ochreous anterior wings, this and Wockeella are distinguished by the thick apparent pectination on the back of the antennæ. It is distinguished from Wockeella by the paler colour of the anterior wings, of which the costa has a fine white line, which reaches only one-fourth from the base, and by the antennæ having only the terminal *sixth* free from hairs.

The larva of this species was discovered by Mann on *Onopordon acanthium*.

Sp. 11. WOCKEELLA, Z.

Closely allied to *Onopordiella*; most easily distinguished by the antennæ, of which the terminal *third* is destitute of hairs. The costa of the anterior wings is white for half its length.

A single specimen taken by Dr. Wocke, near Breslau, June 23.

Sp. 12. OCHREA, Haw.

Not closely allied to any known species: the luteous anterior wings have some dark veins near the costa posteriorly, and with a small discoidal silver line, a long one in the fold of the wing, and the inner margin silvery white. A variety (b) occurs with a silver line along the costa, and in another variety (c) the fold line and discoidal line are united and produced to the apex.

Occurs in many parts of the Continent. Mann found the case of var. *b*. in 1848, abundant on sunny dry slopes, on the bloom of *Potentilla argentea*.

Sp. 13. VULPECULA.

Very like *Gallipennella* in colour, rather smaller; easily distinguished by the hairy antennæ and the long palpi: according to the form of the parts of the head, it comes nearest to *Ballotella*, from which it differs by its larger size, brighter colouring, and more especially by the extraordinary length of the palpi, which are as long as the head and thorax together.

A single specimen in Von Heyden's collection, taken near Ofen, by Kindermann.

Sp. 14. BALLOTELLA, F-v-R.

Anterior wings luteous, with white costal line, and very fine white fold line at the base.

The larva feeds on *Ballota nigra*, *Lamium album* and *purpureum*, in July and August; the perfect insect appearing in September. The species occurs near Vienna and in the south-east of Russia.

Sp. 15. BINOTATELLA, Z.

Readily distinguished among those species of which the antennæ are hairy far above the base, and of which the anterior wings are yellowish: it is the smallest; and the dark sprinkled anterior wings have two brownish spots, one in the fold of the wing near the inner margin, and the other in the disk in the last third of the wing.

A scarce species, discovered by Mann, near Vienna.

Sp. 16. *SQUALORELLA*, *Heyden*.

Readily known by the whitish anterior wings having a distinct long brown streak on the fold of the wing, and two brown spots, one above the streak, the other near the hinder margin.

A single female specimen taken by Von Heyden, in August, in a field near Frankfort-on-the-Maine.

Sp. 17. *ORNATIPENNELLA*, *Hübner*.

One of the largest species; not easily confounded with any other, except *Lixella*. It is considerably larger than this, has paler, broader and less hooked anterior wings, and the silver fold line has no margin of brown scales.

It occurs in many parts of Germany and at Vienna; frequents blooming sage, on the borders of fields, from May to August.

Sp. 18. *LIXELLA*, *Z.*

With all the silver streaks margined with brown scales.

Sp. 19. *VIBICELLA*, *Hübner*.

Among those species of which the antennæ above the basal tuft are very little, or not at all, thickened, this and *conspicuella* are distinguished by the silver streak at the middle of the costa of the anterior wings: this begins, far removed from the base, on the subcostal nervure, converges towards the costa, and terminates in the costal cilia. The darker colour of the anterior wings, the broader, less prominent wedge-streak of the apex of the wing, and the want of a shining inner-marginal line, distinguish *Vibicella* from *conspicuella*.

The larva feeds in the middle of June, on *Genista tinctoria*; also, according to Mann, on a species of *Solidago* (?): the perfect insect appears in July and August.

20. *CONSPICUELLA*, *Mann*.

This might readily be passed for a pale variety of *Vibicella*; but the rather broad, silvery white inner marginal line on the anterior wings, and the different case of the larva, sufficiently distinguish the species.

This occurs near Vienna and Frankfort-on-the-Maine, in July.

Sp. 21. *CÆLEBIPPENNELLA*, *Tischer*.

This resembles *Vibicella* and *conspicuella* in the silvery costal line being far removed from the base; but this line is always with it on the costa itself, and does not—as in the lines at its basal end—slope to the subcostal nervure. More easily may it be confounded with the pale and similarly silver-streaked *Vibicigerella*, which flies in the same places; but here again the costal line gives the most certain character, since in the latter species this is continued quite to the base. The most closely-allied species is *Valesianella*: from this *Cælebipennella* differs in being always smaller, in having the wedge-formed streak of the anterior wings much darker and reaching almost to the base of the wing.

A scarce species: occurs at Dresden and Glogau, in July: the larva feeds on *Artemisia campestris*.

Sp. 22. VALESIANELLA, Heyden.

A single specimen in Von Heyden's collection, from the Valais.

Sp. 23. COLUTELLA, F.

Anterior wings bright yellow, with the costa and inner margin silvery; palpi as long as the head and thorax together.

A specimen was in the collection of Fischer-von-Röslerstamm.

Sp. 24. ASTRAGALELLA, F-v-R.

Closely allied to *Vibicigerella*, but with the head and thorax pale yellow, concolorous with the anterior wings.

Mann says that the larva is abundant on *Astragalus*, near Vienna, but difficult to rear.

Sp. 25. VIBICIGERELLA, Z.

At once distinguished from the larger *Cælebipennella* by the costal streak of the anterior wings reaching to the base. The nearly-allied *Astragalella* has the head and thorax of the colour of the anterior wings instead of white, and the costal line, which in *Vibicigerella* is of uniform thickness throughout, is in the former suddenly attenuated a little way from the base. *Pyrrhulipennella* (very much smaller and without shining markings), *albicosta* (rather smaller and with dirty ochreous yellow anterior wings, and the markings hardly shining), *fuscociliella* (rather smaller and with blunter anterior wings, and the want of a brown wedge-formed streak), and *ditella* (which is most like in colour, size and form), have all their antennæ annulated brown and white, and not unicolorous white. *Vicinella* only has, like *Vibicigerella*, a unicolorous lash to the antennæ, but is very distinct, by its blunt anterior wings being of a lively yellow and destitute of the brown wedge-formed streak.

This species occurs in several parts of Germany and near Glogau: it frequents *Artemisia campestris* in dry sandy places, in May and July.

Sp. 26. DITELLA, Z.

Most readily distinguished from *Vibicigerella* by its annulated antennæ; also smaller, and the costal streak near the base suddenly expands to twice its original size.

Discovered near Frankfort-on-the-Maine, by Von Heyden. It flies on barren hills, in June: the larva feeds on *Artemisia campestris*.

Sp. 27. PARTITELLA, Z.

Larger than *Vibicigerella*, from which it is readily distinguished by its deeper yellow colour, the pale hardly loam-yellow wedge-formed streak, and the strongly annulated antennæ. Its larger size, pale wedge-formed streak, the costal streak not being attenuated at the base, and the discoidal streak not being continued to the apex of the wing, separate it easily from *ditella*. The much larger size of the anterior wings and the length of the discoidal streak separate it from the paler-coloured *fuscociliella* and *vicinella*, which latter has besides unannulated antennæ.

This has occurred at Jena and near Vienna.

Sp. 28. *FUSCOCILIELLA, F-v-R.*

Considerably smaller than *partitella*: differs by the paler ground-colour of the anterior wings, the shorter discoidal streak, and the finer fold streak. The ground-colour, fine fold streak and annulated antennæ distinguish it from *vicinella*.

Occurs in several localities in Germany, on dry grassy places, in June and July.

Sp. 29. *VICINELLA, F-v-R.*

Antennæ white, unannulated; costal streak attenuated at the base.

A scarce species: taken by Mann, along with *partitella*.

Sp. 30. *PYRRHULIPENNELLA, Tischer.*

Resembles *Vibicigerella* in the markings, but distinct, from its smaller size, darker ground-colour of the anterior wings, and almost lustreless streaks, annulated antennæ and shorter tuft.

Common at Glogau and Dresden: the larva feeds on heather, in October and April.

Sp. 31. *ALBICOSTA, Hsworth.*

Larger than *Pyrrhulipennella*, the ground-colour of the anterior wings paler, and the almost lustreless streaks finer.

Zeller describes this from a specimen I had sent him, the species not having been yet detected in Germany.

Sp. 32. *TRIFARIELLA, Z.*

Readily recognized, among the species with three streaks on the anterior wings, by the quite dull white colour of these streaks, on the pale ochreous ground-colour.

Taken by Mann, in May, in Hungary.

Sp. 33. *ORIOLELLA, F-v-R.*

The anterior wings of the ground-colour of *C. Vulnerariæ*; thus readily distinguished from *Coronillæ*, *serenella* and *Onobrychiella*: yet it can never be confounded with *Vulnerariæ*, since in that species the white streaks are margined with fuscous scales, which in *Oriolella* is not the case. *Oriolella* has a yellowish, not whitish, clothing of hairs to the antennæ above the basal joint, and a rounded tuft. The medial and fold streaks on the anterior wings are finer.

This occurs near Vienna, in May and June, on *Coronilla*.

Sp. 34. *VULNERARIÆ, Z.*

Readily distinguished from all the nearly-allied species by the white streaks on the anterior wings being margined with brown scales.

Not scarce in many localities in Germany, amongst *Anthyllis vulneraria*, in June and July.

Sp. 35. GALLIPENNELLA, *Hübner*.

Has great resemblance with *Coronillæ*, but the antennæ are on the back unicolorous white (only spotted with brown beneath), and destitute of hairs above the basal joint; and besides the costal streak of the anterior wings is broader, and the discoidal streak entirely wanting. All the other somewhat similar species are much smaller, with brown annulated antennæ.

Zeller took a specimen on *Astragalus glycyphyllus*, near Glogau: it has also occurred in other parts of Germany.

Sp. 36. CORONILLÆ, Z. (*GALLIPENNELLA*, Tr.)

This is the largest and most beautiful of those species of which the brown annulated antennæ have a slightly hairy clothing above the basal tuft. In the lively yellow colour of the anterior wings, *serenella* and *Onobrychiella* come near to it: the former comes nearest to it in size, and has quite similar white lines on the anterior wings. Its specific distinctions are, that in *Coronillæ* the basal tuft of the antennæ is longer, and the white costal streak much narrower; this is no broader than the end of the antennæ, whereas in *serenella* it is twice as broad. The very much smaller *Onobrychiella* has this line somewhat stouter than *Coronillæ*, no trace of a discoidal streak, and the tuft of the antennæ shorter. *Bilineatella* is similar in colour, but wants the discoidal streak, and has the costal streak broad, expanding posteriorly, and continued almost to the apex of the wing.

The larva feeds on *Coronilla varia*, and the perfect insect frequents this plant in June and July, in many parts of Germany.

Sp. 37. SERENELLA, *Tischer*.

Smaller than *Coronillæ*, which it extremely resembles, but is distinguished as above mentioned.

Occurs in many parts of Germany, in June. Mann found the larvæ-cases very abundant on a laburnum tree at Vienna. Von Heyden takes the species among *Astragalus*.

Sp. 38. ONOBYRCHIELLA, *F-v-R*.

Allied to *Coronillæ*; the tuft of the antennæ is much shorter, and the lash of the antennæ considerably thickened with yellowish hairs; the costal streak on the much shorter anterior wings reaches rather further towards the hinder margin. From *serenella* it is likewise distinguished by its smaller size, narrower costal line, and more hairy antennæ. The much smaller size, the presence of a discoidal streak (though indeed extremely faint), and the thin costal line, separate it from *bilineatella*.

Near Vienna, in June and September, among *Onobrychis*; formerly bred abundantly by Mann.

Sp. 39. BILINEATELLA, Z.

Its posteriorly much-expanded, pure white costal streak, and the entire absence of a discoidal streak, separate it from the preceding species.

Occurs sparingly in several localities in Germany, in June and July.

Sp. 40. *STRAMENTELLA*, Z.

Anterior wings unicolorous yellowish gray, with only a very thin, hardly perceptible whitish line on the costa before the middle.

Taken by Mann near Vienna, in June, and near Szexard, in Hungary, in pasture-fields.

Sp. 41. *ALBICOSTELLA*, F-v-R.

Most like *C. niveicostella*, but with a broader, snow-white, sharply margined costal streak to the anterior wings, brown annulated antennæ, and a distinct though short tuft to the antennæ.

Near Vienna, on bare hills, May to September.

Sp. 42. * *CROCINELLA*, Tengström.

In June, near Helsingfors, in Finland.

Sp. 43. *TILIELLA*, Schrank.

Distinguished from *palliatella* by its white anterior wings being only towards the apex sprinkled with brown-gray: the also darker *Hemerobiella* is, by the form of the antennæ, not closely allied.

Generally distributed, and common in June and July. The larva feeds in May, on whitethorn, blackthorn and birch. Its case has some resemblance to that of *palliatella*, if we except the appendages, and still more with that of *Currucipennella*.

Sp. 44. * *INCANELLA*, Tengström.

Sp. 45. * *MURINELLA*, Tengström.

Sp. 46. *PALLIATELLA*, Zincken.

Nearest allied to *Tiliella*, *Currucipennella* and *Ibipennella*: from the former easy to be distinguished, from the nervures towards the apex of the anterior wings being faint yellowish brown, whereas *Tiliella* has here only scattered gray-brown scales. *Currucipennella* is even more like, but in this the yellowish brown nervures are much thickened, almost confluent, and continued very distinctly (only lighter) to the base of the wing. *Ibipennella* comes the nearest: it is like the smallest specimens of *palliatella*, with the anterior wings dirty white, with broader, somewhat darker, loam-yellow long nervures.

A widely-distributed species, appearing in June and July. The larva feeds on oak, birch and hazel. The case has an appendage fastened to each side of the upper end, which conceals the greater part of the tube, and leaves only the lower end uncovered.

Sp. 47. *IBIPENNELLA*, Heyden.

Differs from *Currucipennella* in the branches of the nervures being sprinkled with loam-yellow scales, and not appearing as loam-yellow lines.

Bred by Von Heyden, from a larva found on an oak-leaf, in June. The case precisely resembles that of *Tiliella*.

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Sp. 48. CURRUCIPENNELLA, F-v-R.

Resembles Tiliella in the form of the larva-case, and palliatella in the markings of the perfect insect. The males are sometimes extremely difficult to separate from palliatella.

Occurs in many parts of Germany, in July: the larva feeds on *Carpinus betulus* and oaks.

Sp. 49. AURICELLA, Fabr.

Much purer white than *Virgatella*; differs, also, from the loam-yellowish nervures and the white-gray posterior wings. From the (superficially considered) similar *Onosmella* it is easily separated by the pale posterior wings and the tuft at the base of the antennæ.

Scarce: Paris, Vienna, and Frankfort-on-the-Maine, in June. The larva feeds on *Stachys recta*.

Sp. 50. VIRGATELLA, Z. (*AURICELLA*, Z. *Isis*, 1839).

Distinguished from the preceding by the much darker, sharper lines on the anterior wings, the dark gray posterior wings, and the shorter tuft of the antennæ.

Sp. 51. CHALCOGRAMMELLA, Z.

The smallest known *Coleophora*; strongly characterized by the two thick, shining, bronze-coloured long-lines on the yellow anterior wings.

Zeller took four male specimens near Glogau, on dry weedy hills, towards evening, in the sunshine, in June and July; and Schläger took a female near Jena, on a fence, in July.

Sp. 52. ALBIFUSCELLA, Z.

This and *leucapennella* are distinguished by the black-brown anterior wings having a broad snow-white costal line: its hairy antennæ separate it readily from the bare-horned *leucapennella*.

Occurs in many parts of Germany and in Livonia, in May and July. The larva-case was found by Von Heyden, fastened to a capsule of *Lychnis viscaria*, in July.

Sp. 53. LEUCAPENNELLA, Hübner.

Only differs from *albifuscella* in the antennæ, which are quite destitute of hairs. Occurs in many parts of Germany, in May and July.

Sp. 54. CREPIDINELLA, Z.

Smaller than *niveicostella*: differs from *albifuscella* by the simple antennæ, and from *leucapennella* by the paler ground-colour and the finer white costal line of the anterior wings.

Taken by Zeller, near Syracuse, in May.

Sp. 55. NIVEICOSTELLA, *F-v-R.*

The pale loam-yellowish colour, with the sharp snow-white costal line, and the white, unannulated, tuftless antennæ, separate this species readily from the preceding tuftless species, as well as from the tufted species allied to *Onobrychiella*. It comes nearest to *discordella*, but this has on the anterior wings a complete fine snow-white fold-line, which *niveicostella* entirely wants.

In many parts of Germany, not scarce, in May and June.

Sp. 56. DISCORDELLA, *Z.*

Nearest allied to the preceding, but differs in the annulated antennæ, short palpi-tuft, complete snow-white fold-line, broader costal line, and the white scales before the hinder-marginal cilia.

Sparingly, in several parts of Germany, in June.

Sp. 57. FRINGILLELLA, *F-v-R.*

Among the preceding species, this in marking and colour resembles *Pyrrhulipennella* and *albicosta*, and would—together with *rectilineella* and *tractella*—belong to that group, since it has a costal line, an obtuse-angled interrupted discoidal line, and a fold-line, all white on a loam-yellow ground-colour; but it (together with *rectilineella* and *tractella*) differs from this group in the want of a tuft to the antennæ, since the few short projecting hairs cannot be considered as one. *Fringillella*, which besides in this character differs from *Pyrrhulipennella* in its much larger size, is nearest allied to *rectilineella*; in the latter the broader costal streak of the anterior wings reaches almost to the apex of the wing, the discoidal streak is much stouter and more visible, and after a curve ends with an unequal fork on the hinder margin, whereas in *Fringillella* it always terminates simple; *rectilineella* also has a darker ground-colour, and the last joint of the palpi reaches beyond the tuft of hairs of the preceding joint, whereas in *Fringillella* the reverse takes place. The same difference in the palpi exists between *Fringillella* and *tractella*, besides which the latter is smaller, with narrower wings, and even more darkly coloured than *rectilineella*.

Occurs in Hungary and Vienna, but scarce.

Sp. 58. RECTILINEELLA, *F-v-R.*

The broader white streaks standing out more sharply on the darker anterior wings, and the generally very distinct fork to the discoidal streak, readily distinguish it from *Fringillella*; but the strongest character is furnished by the comparative lengths of the terminal joints of the palpi and the tufts of hair on the second joints. *Rectilineella* is considerably larger and rather paler than *tractella*, and has a broader costal streak, a complete, very distinct fold streak, and on the upper side unannulated antennæ.

An alpine species, flying in the early morning among grass, in July and August.

Sp. 59. TRACTELLA, *Heyden.*

Certainly to be distinguished from *rectilineella* by the sharply brown and white annulated antennæ.

Specimens are in Von Heyden's collection from the Valais.

Sp. 60. SAPONARIELLA, *Scheffer*.

Of pigmy size, sometimes smaller than chalcogrammella, with the markings of rectilineella and tractella: its small size, its completely annulated antennæ, and its simple palpi without a tuft of hairs, distinguish it readily from both.

The species occurs at Frankfort-on-the-Maine and Vienna, in July and August. The larva feeds in June, on *Saponaria officinalis*.

Sp. 61. FRETELLA, *Z.*

Allied to *Saponariella*, rather larger; easy to distinguish by the faintly brownish annulated antennæ, the stout long tuft of hair to the palpi, the pale ochreous-yellow anterior wings, the broader not sharply-margined costal streak, and the faint two other streaks.

Taken by Zeller, near Messina, early in April.

Sp. 62. STRIOLATELLA, *Z.*

Closely allied to *Fretella*, but the anterior wings paler yellowish, and the white streaks sharper and rather shining; the costal streak is broad at the base, whereas in *Fretella* it is narrow and afterwards expands.

Taken by Mann, in Hungary and near Vienna, in July.

Sp. 63. ONOSMELLA, *Brahm*.

Most resembling *C. auricella* and *virgatella*, which have also sharp fine lines on the nervures of the white anterior wings; but in these the apex of the wing is surrounded by a similar line, which is also continued (at least on the costa) to the base: this is wanting in *Onosmella*. Besides, both these species have long tufts at the base of the antennæ, whilst in *Onosmella* the basal joint is only rather hairy.

Widely distributed, and in many places not scarce, in June. The larva feeds on *Onosma echioides* and on *Anchusa officinalis*, probably also on *Echium vulgare*.

Sp. 64. THERINELLA, *Z.*

Among those species with dark nervures, without black scales, it comes nearest in size to the smallest specimens of *Onosmella*: it is readily distinguished from that species, since the nervures are much broader, posteriorly chiefly united; the wings are narrower, and receive from the nervures a loam-yellowish, whitish-lined colouring. From the closely-allied *Troglodytella* it is distinguished by its narrower, more pointed anterior wings, and more faintly brownish annulated antennæ.

Occurs in many parts of Germany and in Sweden, in June and July: near Glogau it frequents the borders of fields, where much *Galium verum* and *Aparine* grows.

Sp. 65. TROGLODYTELLA, *F-v-R.*

Allied to the preceding, but differs in the wings being broader and shorter, and the loam-yellow line which arises at the base of the anterior wings confines the white costa rather more, and contributes much to the darker appearance of the costal half of the wing.

Occurs near Helsingfors, Vienna, Hungary, &c., in June and July. Von Heyden found two cases on *Tanacetum vulgare*, and Mann says the larva feeds on *Artemisia*.

Sp. 66. * *STRIATIPENNELLA*, *Nylander*.

Sp. 67. *CROCOGRAMMOS*, *Z.*

Allied to some of the varieties of *Troglodytella*, but distinguished by the yellow costal cilia of the anterior wings and the broad white costal line.

A single specimen taken near Glogau, in spring.

Herr Zeller last year bred this species in plenty, from larvæ found on *Ballota nigra*.

Sp. 68. *DERIVATELLA*, *Z.*

Allied to *Troglodytella*, but with narrower, longer-pointed anterior wings, with paler nervures and narrower white costal line.

Taken by Zeller, in May and June, near *Syracuse*.

Sp. 69. *LINEARIELLA*, *F-v-R.*

This has some resemblance to *C. directella*, but is distinguished by the shorter tuft of the palpi, sharply annulated antennæ, and finer costal line of the anterior wings, which are entirely destitute of black scales.

Occurs near Vienna, in April; and on several of the Austrian mountains, in July, August and September.

Sp. 70. *PRÆCURSELLA*, *Z.*

Readily known by the anterior wings, which are rather narrow, caudate, yellowish brown, with slender white lines on the disk.

Taken by Zeller, near Messina, among bushes of *Arbutus*, *Erica arborea* and *Cytisus*, in February and March.

Sp. 71. *OBTECTELLA*, *Z.*

Strongly characterised by the brownish abbreviated branches of the subcostal nervure. Size of *Laricella*.

Taken by Zeller, near *Syracuse*.

Sp. 72. *MURINIPENNELLA*, *F-v-R.*

This has some resemblance to *Therinella* and *Troglodytella*: it is distinguished from the latter by its much smaller size, and the less sharp, more confluent, nervures of the anterior wings; and from the former by the strong brown annulations of the antennæ. Its differences from *cæspititiella* are mentioned with the latter.

Occurs in many parts of Germany: near Glogau it frequents grass in May, sometimes even at the end of April, and is very plentiful.

Sp. 73. *CÆSPITITIELLA*, *Z.*

Nearly allied to *murinipennella*, but rarely as large as the smallest specimens of that species. Its anterior wings are rather smoother, much more yellowish, with the nervures entirely confluent: only the branches of the subcostal nervure become visible in certain directions, and only the thin costal line which reaches to the beginning of

the cilia is rather pure white. It thereby differs also from the more distinctly-veined *lacunicolella*, which has besides the antennæ almost unannulated. Still nearer is it to the generally rather larger *alticolella*, from which it is perhaps not specifically different. *Alticolella* has certainly, in general, unannulated antennæ; but there are specimens—and indeed not only of the ordinary size, but also of the same size as *cæspitiella*—which have more or less distinct traces of dark rings on the basal half of the antennæ: moreover, I believe positively I have taken both in company. *Cæspitiella* and *alticolella* have a superficial resemblance to *badiipennella* and *Milvipennis*; but they will never be confounded if it is borne in mind that in the two first the branches of the subcostal nervures are to be perceived as of darker colour, whereas in the two latter they are precisely the same colour as the disk.

Occurs in June, among rushes, in many parts of Germany.

Sp. 74. *ALTICOLELLA*, Mann.

Closely allied to the preceding and the following. Differs from *Lacunicolella* by the smoother disk of the anterior wings, and the almost quite confluent (and therefore hardly to be distinguished) nervures; and from *cæspitiella* in the antennæ being unannulated, or only faintly and incompletely annulated at the lower half.

Occurs among rushes, in June and July, in many parts of Germany.

Sp. 75. *LACUNICOLELLA*, Mann.

Quite similar in form to a small *Alticolella*, also very similar in colour; so that it certainly is only a lively-marked *Alticolella*.

Taken near Vienna, by Mann, in May and August, among rushes.

Sp. 76. *OTITÆ*, Z.

The largest of the species with pale lines between the nervures of the anterior wings, and with scattered black scales. Its white (not brown annulated) antennæ, together with the generally rather shining white lines on the costal half of the anterior wings, distinguish it from *flavaginella*, *Motacillella*, *annulatella*, &c. *Versurella*, similar in the antennæ, is paler, with dirty white nervures on the narrower anterior wings. *Millefolii* is usually much smaller, much paler, with longer tuft of the palpi. *Directella* has certainly white antennæ, but no lustre in the very obsolete white lines of the anterior wings.

Not scarce in many parts of the Continent, in July and the beginning of August. The larva feeds on the under-side of the lowermost leaves of *Cucubalus* *Otites*.

Sp. 77. *ANNULATELLA*, Nylander.

In size and appearance resembles *C. otitæ*; but the latter has quite unannulated antennæ, broader anterior wings, a purer white and sharper-margined costa, and a longer tuft to the palpi. Still nearer allied is *flavaginella*, which has also sharply-annulated antennæ and quite similarly marked anterior wings; but this appears to be specifically distinct, by the rather shorter, less pointed, anterior wings, and the longer tuft of hair to the palpi, which is nearly three-fourths as long as the terminal joint. From *Versurella* it is distinguished by its darker colour and its sharply brown and white annulated antennæ. *C. millefolii* is distinguished—besides its more whitish

ground-colour and the more conspicuous whitish nervures of the anterior wings—by the tuft of hair on the palpi reaching almost to the end of the short terminal joint.

In many parts of Germany, not scarce, in June and August, among grass.

Sp. 78. *VERSURELLA*, Z.

Perhaps only a smaller variety of *annulatella*, of paler gray ground-colour, and with extremely faint annulations of the antennæ.

Not scarce, near Glogau, in June, on dry road-sides and margins of fields.

Sp. 79. *FLAVAGINELLA*, Lienig.

Nearly allied to *annulatella*, of the size of the smallest specimens of that species: its antennæ are sharply-annulated black-brown and white to the extreme apex: anterior wings shorter and broader, rather dark loam-yellow, without any admixture of gray.

Occurs in Livonia and Finland. Madame Lienig used to find the larva-cases from March to June, on walls, palings, and stems of birch-trees. Zeller found similar cases in September, on *Chenopodium album*, on which the larvæ lived through the winter, but died before their final change.

Sp. 82. *MOTACILLELLA*, F-v-R.

Closely allied to *flavaginella*, but the anterior wings broader and less pointed.

A single male specimen taken near Vienna.

Sp. 81. *PUNCTIPENNELLA*, Nylander.

Perhaps identical with the preceding, which it closely resembles, but the tuft on the palpi is shorter.

Taken near Helsingfors, early in June, among grass, rather plentifully, by Tengström.

Sp. 82. *GNAPHALII*, Z.

One of the smallest *Coleophoræ*, yet variable in size. It is distinguished from *flavaginella*, *Motacillella*, &c., by its annulated antennæ and pure white (in the female broader) costa of the anterior wings. *C. millefolii* is sometimes quite as small, with the anterior wings similar in colour, and the costa also similar, but it can always be distinguished with certainty by the palpi: in *C. Gnaphalii* the tuft on the second joint of the palpi is not as long as the half of the terminal joint, but in *C. millefolii* it reaches almost to the end of it.

Occurs in many parts of Germany, frequenting sheltered places where *Gnaphalium arenarium* grows, in July. The larva feeds on that plant early in June.

Sp. 83. *MILLEFOLII*, Z.

Among those species with tuftless antennæ and black scales on the dark-veined anterior wings, this is distinguished by the tuft of hair on the palpi, which reaches nearly to the end of the rather short terminal joint; without this character the

smallest specimens with sharp annulations of the antennæ might easily be mistaken for *Gnaphalii*.

This species occurs in many parts of Germany, in August: it frequents *Achillea millefolium*, and the larva feeds on that plant in June.

Sp. 84. *DIRECTELLA*, Z.

Certainly very similar in the form of the palpi to *C. millefolii*, yet with differences sufficient to constitute a distinct species. The costa of the anterior wings is as a very sharp line, pure white, and by the adjacent streaky darkening of the brownish yellow ground-colour is still more strongly contrasted; the antennæ, also, are white. *C. otitis* has broader anterior wings, sharp, rather shining white lines between the veins, and shorter tuft of the palpi.

A scarce species: taken by Mann on the Schmeberg, in August; and bred by Dr. Wocke, at Breslau, in July.

Sp. 85. *ARGENTULA*, Stephens.

Of the size of a small *murinipennella*, with broader wings and sharp loam-yellow veins: very near *Troglodytella*, var. *b*, much smaller, with sharper, narrower white spaces on the disk of the anterior wings. *Granulatella* is distinguished, perhaps not specifically, by the rather plentifully (especially in the white spaces on the disk) scattered black scales: *argentula* is generally quite undusted, rarely with two such scales: the former has also more complete brownish annulations, extending nearer the tip of the antennæ. -

Frequents dry grassy places in August: the cases of the larvæ are to be found in July, on the bloom of *Achillea millefolium*.

Sp. 86. *GRANULATELLA*, Z.

Resembles *C. argentula*, usually a little larger, sometimes smaller: the antennæ are (but not in the palest specimens) darker brownish annulated, and farther towards the apex. The ground-colour of the anterior wings is darker, and in lines less sharply contrasted with the loam-yellow veins.

Flies near Glogau, not rare, in July and August.

Sp. 87. *ALBICANS*, Z.

Very similar to the palest specimens of *granulatella*, but the antennæ are quite unannulated, and the tuft of the palpi is rather shorter, only a third as long as the terminal joint.

Three specimens taken near Glogau.

Sp. 88. *PUNCTULATELLA*, Heyden.

As the preceding is a doubtful species, so is this a most certain and strongly-marked one. None of the allied species have such deep black spots on the anterior wings as *punctulatella*.

A single male specimen from Marseilles.

Sp. 89. *HEMEROBIELLA*, Scop.

The unspotted variety especially, resembles *C. Tiliella*, but is immediately distinguished by the want of a tuft to the antennæ.

A widely spread species: the larva feeds on apple, pear, and cherry; the perfect insect appears in July.

Sp. 90. *LARIGELLA*, Hübner.

One of the smallest *Coleophoræ*; yet generally larger than *chalcogrammella*, and *auroguttella*. Its faintly shining, brownish-gray anterior wings and concolorous antennæ (in the female faintly annulated) distinguish it from the following dull species.

Extremely abundant everywhere, among larches, in June.

Sp. 91. *ALBITARSELLA*, Z.

A readily distinguished species, by the antennæ and colour of the hinder tarsi. Antennæ annulated brown and white, the last fourth altogether white, tarsi dirty yellowish white.

A scarce species, appearing in June and July,

Sp. 92. *CORACIPENNELLA*, Hübner.

Its dark slaty bluish brown anterior wings distinguish it sufficiently from *C. Binderella*, *Luscinæpennella*, and other species of which the brown is more or less mixed with yellow; it comes nearest to *albitarsella* and *fuscedinella*. From the former it is separated with certainty by its stouter form, the antennæ annulated to the end, and the differently coloured tarsi: from *fuscedinella* it is distinguished by the entire want of a yellowish tint on the anterior wings, and the antennæ being sharply annulated black and white to the apex.

On blackthorn and plum, very common in June and July, and widely distributed.

Sp. 93. *FUSCEDINELLA*, Z.

Certainly distinct from *Coracipennella*, by the antennæ, which are less pure white, or even yellowish white; and the brown rings of which (on the underside faint) cease far before the apex; besides by the always rather inclining to yellowish brown tint of the anterior wings; and lastly by the entire want of the whitish upper margin of the eyes. *Orbitella*, which also comes very near it, is distinguished specifically from *fuscedinella*, by the more attenuated basal joint of the purer white, and, therefore, generally more sharply annulated antennæ; it has also the margins to the eyes which are wanting in *fuscedinella*, and its generally paler anterior wings are smoother. *Binderella*, which resembles *fuscedinella* in form and colour of the antennæ, sometimes comes so near it, that the specific difference becomes doubtful; but in most specimens of *Binderella*, the very abundant admixture of loam-yellow in the brown of the anterior wings gives a good distinction, which also appears to indicate a true species. Of the following species, *Luscinæpennella* has still some resemblance with many dark specimens of *fuscedinella*; however, the approximation of the mutual colours is only slight, and at any rate the sharply and completely black and white annulated antennæ of *Luscinæpennella*, will no longer leave any doubt.

This species is no rarity near Glogau, and Zeller has often bred it, he thinks, from birches. It is also widely distributed on the Continent.

Sp. 94. *ORBITELLA*, Z.

A distinct species which may hitherto have been confounded with *Coracipennella* and *Lusciniæpennella*: Zeller himself united it formerly with *Coracipennella*. It is distinguished from the former by its much paler and smoother, not coarsely scaled anterior wings, and the annulations of the antennæ vanishing far before the apex; the latter is also the best distinguishing character from *Lusciniæpennella*. The smooth anterior wings, and the longer basal joint of the antennæ distinguish it from *fuscedinella*.

Orbitella occurs near Glogau, and among willows at Vienna, but is scarce.

Sp. 95. *BINDERELLA*, Kollar.

The darkest specimens are hardly to be distinguished from *fuscedinella*; but in them the colour of the anterior wings is more yellow, and wants a slaty tint. In most specimens, which are easily recognized, the yellow colour prevails still more; and then it approaches the colour of *solitariella*. The latter species has besides the black-gray posterior wings, which contrast strongly with the anterior wings, completely black and white annulated antennæ, similar to the still paler coloured *Lusciniæpennellæ* and *lutipennella*.

Binderella flies plentifully in alder-brakes, near Glogau; probably also in birch woods: it occurs also at Vienna, among alders, and in other parts of Germany.

Sp. 96. *LUSCINIÆPENNELLA*, Tr.

The sexes generally are rather different in the colour of the anterior wings. The male comes near *orbitella*; but is rather paler, and has completely black annulated antennæ, and a short basal joint. The female generally approximates to *lutipennella*; the yellow on the wings is dirtier and lighter, and the scales less coarse, which thence causes a smoother surface.

This species occurs in most parts of Germany: the larva feeds on roses from the middle of April to the middle of May: the perfect insect begins to appear about the middle of May.

Sp. 97. *LITHARGYRINELLA*, Z.

Distinguished by the loam-yellow, inclining to bronze-yellow colour of the smooth and remarkably shining anterior wings.

Frequents the narrow-leaved alpine willow on the Schneeberg.

Sp. 98. *DEVIELLA*, Z.

Readily distinguished from *Lusciniæpennella* by the thicker antennæ, with white basal joints, and pale annulations, and the narrower, less smooth anterior wings.

Zeller took three specimens on the 4th of May, in the marshes, near Syracuse, among *Juncus acutus*.

Sp. 99. SOLITARIELLA, Z.

Only one male specimen, but a certain, easily recognizable species: its sharp, pure white and black annulations of the antennæ; its pale loam-colour; the hairy surface of the anterior wings, of which the dark gray cilia at the anal angle, and the very dark posterior wings, do not allow it to be confounded with any known species.

Zeller bred this on the 26th of May, from a case found on a stem of grass in a leafy wood.

Sp. 100. LUTIPENNELLA, Z.

Distinguished from the preceding species by its pale yellow, coarsely-scaled anterior wings, and the entirely, though generally light brown, annulated antennæ. The following species have a strikingly pale costa of the anterior wings, and want the coarse rounded scales on them.

Generally distributed throughout the continent, in June and July.

Sp. 101. BADIIPENNELLA, F-v-R.

This is the smallest of those species which have the costa of the anterior wings as a pale streak. It differs, moreover, from *Milvipennis*, by the dark colour of the anterior wings, and the antennæ being annulated white and brown to the apex: from *unipunctella* it is readily distinguished, by the want of the sharp, brown spot, on the apical half of the anterior wings; from the much larger, but equally dark *Limosipennella*, by the brown annulations of the antennæ extending to the apex: also, from the larger *ochripennella* by the whitish, not pale yellow, costa of the anterior wings, &c.

This species frequents the maple in June, at Vienna and Leghorn; and the cases are to be found on the maple near Breslau: it occurs very abundantly on elms.

Sp. 102. MILVIPENNIS, Z.

This is very like the preceding, but larger; the colour of the head, thorax, and anterior wings, is much paler, more ochreous-yellow. The dark annulations of the antennæ are generally very faint on the under side, and about the terminal sixth is unannulated whitish: terminal joint of the palpi rather shorter, little more than half as long as the second joint.

A scarce species: it has occurred near Glogau, in June.

Sp. 103. UNIPUNCTELLA, F-v-R.

Of the size of *C. Milvipennis*, readily distinguished among the species with pale costa of the anterior wings, by the brown spot on the disk of these wings towards the hinder margin.

According to Mann, this species frequents the mountainous districts near Vienna, in July and August; and the larva is abundant on *Chenopodium*, but generally dies in captivity, in the winter.

Sp. 104. LIMOSIPENNELLA, (F-v-R.) Dup.

Most resembles *badiipennella*; distinguished by its larger size, and by the unannulated apices of the antennæ.

Occurs near Paris, Vienna and Glogau, on elms, in June and July: Zeller found the larvæ on elm-leaves in July; and at the end of August, the larvæ were still unchanged; hence the perfect insect would probably not appear till the following year.

Sp. 105. *OCHRIPENNELLA*, *Schläger*.

Distinguished from *Limosipennella* by the paler anterior wings, with yellow, not white, costa; by the shorter unannulated apices of the antennæ; by the stouter tuft of hair on the second joint of the palpi; broader posterior wings, &c.: from *Milvipennis* by the larger size; greater breadth of all the wings; darker anterior wings with yellow costa: the yellow colour of the costa especially distinguishes it from all the nearly allied species.

Occurs at Jena, in June: the larva feeds on *Ballota nigra*, *Lamium album* and *purpureum*, growing in sheltered places, and is not uncommon at the end of April and in May.

GONIODOMA, *n. g.*

Sp. 1. *AUROGUTTELLA*, *F.-v.-R.*

One of the smallest species of the *Coleophora* group; easily recognized by the large gold spots before the apex of the anterior wings.

This species was discovered by Mann, in a garden at Vienna, and Fischer von Röslerstamm has given two elaborate plates in his work, of its transformations. The larva feeds on *Atriplex laciniata*, *patula*, and *latifolia*, of which it eats the seeds. When full grown it fastens its case to the side of the stem of the plant, and bores into the inside, where it spins a white cocoon, and remains all the winter, changing to a pupa early in July: twelve days after which the perfect insect appears.

Obs. I have now fulfilled my promise of making an abstract of Zeller's paper, which I have deemed more expedient to give in this form, uninterpolated with my own remarks. Had I appended to each species a notice that such a species was, or was not, British, these notices would become useless in a few months by the discovery, as British, of many species not yet known to inhabit our island. So extremely little has been hitherto done by us in this group of insects, the species appearing to an unpractised eye so very much alike, that I doubt not in the least, by the help of this paper of Zeller's, we may almost double the number of British species. The following are the only species I know as British at present, and it will be observed that many of them are only known to me, as British, by single specimens.

List of the British Coleophoræ, April, 1850.

The figure at the commencement of each species has reference to the number in Zeller's Monograph.

1. *Mayrella (spissicornis)*.
4. *Deauratella (Trifolii, St. ?)* Taken in a clover-field at Pembury, by Mr. Weir, between July 17 and 25, 1847.

7. *Alcyonipennella*. A single specimen in Mr. Curtis's collection, locality unknown.

7. Var.? *Frischella*, L. (*Trifolii*, C.)

8. *Paripennella*. I have taken this on the Beckenham fence, in June, and flying along a hawthorn hedge at Lewisham; Mr. Douglas met with it, June 2, on the fence between Peckham and Dulwich, by the side of which is a whitethorn hedge, and also some elm trees.

10? *Wockeella*? Mr. Weir has two specimens, taken at Pembury, July 10 and 18, 1847, one among *Genista tinctoria* in an open field.

N. B.—They are rather too dark for *Wockeella*.

12. *Ochrea*.

18. *Lixilla* (*ornatipennella*, Haw.)

19. *Vibicella*.

20. *Conspicuellula*. Mr. Bedell took a very fine specimen of this in Headley Lane, near Mickleham, July 12, 1847.

30. *Pyrrhulipennella*. Mr. Curtis has two specimens he took at Bournemouth, at the end of June. Mr. S. Stevens has also specimens.

31. *Albicosta*. Common in June on *Ulex Europæus*, in Scotland (see 'Zoologist,' p. 1090, under *Porrec. ornatipennella*.)

38. *Onobrychiella*. I have two; locality unknown.

43. *Tiliella*.

46. *Palliatella*. Bred rather plentifully by Mr. Bond.

48. *Currucipennella*. A specimen, bred by Mr. Douglas, from a pupa found on an oak leaf at Wimbledon Common (see 'Entomologist,' p. 385, under *Porrec. ornatipennella*.) Mr. Weir has also one specimen.

50. *Virgatella*. I have one; locality unknown.

55. *Niveicostella*. Taken by Mr. Douglas at Mickleham, at the end of May, 1848: in many collections with the following.

56. *Discordella* (*gallipennella*, Haw? St.?) I have taken this on Loughrigg, Ambleside, among heather in June, and on the downs at Mickleham, in July.

Saturatella, n. s.. Unknown to Zeller, (*leucapennella*, Bent. Mus., non Hbn.) Z.) allied to the preceding, but larger, and deeper coloured; the base of the antennæ so thickly clothed with hairs as almost to amount to a brush. A scarce species: I have taken it on the downs at Mickleham, in July, along with *discordella*.

59. *Tractella*. Mr. S. Stevens has one.

63. *Onormella*. In the collections of Messrs. J. F. Stephens, S. Stevens, Dunning, &c.

64. *Therinnella*. I believe I have a specimen of this species; and Mr. Allis has another.

65. *Troglodytella*. Mr. Weir has one, and I think I have another.

67. *Crocogrammos* (*lineola*, Haw. St.) The larvæ abundant in May on *Ballota nigra*.

72. *Murinipennella*. Among grass, in June, common.

73. *Cæspititiella*.

74. *Alticolella*.

75. *Lucunicolella*.

77. *Annulatella*.

85. *Argentula*. I took this among thistles at Charlton, at the end of July.

89. *Hemerobiella*. In the collections of Messrs. Curtis, Stephens, and S. Stevens.

90. *Laricella*.

91. *Albitarsella*. I and Mr. Douglas have each one specimen; I took mine among willows early in June; Mr. Douglas beat his from a hedge at Sanderstead, in July.

92. *Coracipennella*, Z. (*nigricella*, St. Sta.) Abundant on hawthorn.

93. *Fuscedinella*, Z. (*Coracipennella*, Sta.) Abundant on elms and alders?

94. *Orbitella*. I have three specimens; one of these I beat from mixed hedges at Lewisham, May 30, 1848; one I took at Wickham, June 9, 1848, and the other also at Wickham, June 23, 1849.

95. *Binderella*.

96. *Luscinæpennella*. I have bred this from the cases found on hedge roses in April and May.

100. *Lutipennella* (*lutares*, Haw. St.) On oaks extremely plentiful.

101. *Badiipennella*. I took this on a fence under elms last August.

H. T. STANTON.

Mountsfield, Lewisham,

April 30, 1850.

ART. IV.—*Description of a Lepidopterous Insect of the genus Psyche, recently discovered in Britain.* By EDWARD NEWMAN.

PSYCHE RETICELLA, *mas.*

Antennæ corporis dimidio vix longiores quasi 13-articulatæ articulis 2—12 ramulos duobus ad apicem emittentibus, alis albidis fuliginoso reticulatis, corpore nigro lanugine albido vestito. (Alarum latitudo .375 unc. Corporis longitudo .135 unc).

Antennæ rather more than half as long as the body, apparently 13-jointed. The basal joint is robust, each of the others from the 2nd to the 12th, inclusive, emits two branches from its apex; these branches are longest on the 6th joint, and decrease gradually in length towards either extremity; the antennæ, including the branches, are hirsute, black, with a slight tendency to gray. Head nearly globular, black, but covered with a dense gray pilosity; eyes prominent, black. Wing-bearing segments black, with gray hairs. Abdomen gray, very hairy, with an indication of a central dorsal series of black spots, and of black ventral fasciæ corresponding with the segmental divisions. Legs of moderate size, blackish, with gray pilosity; mesotibiæ with two strong apical spurs; metatibiæ with two preapical and two (?) apical spurs. Wings rounded, whitish, with the nervures and a number of transverse markings smoke-coloured, giving the wings a reticulated appearance.

HAB.—The vicinity of the sea near Sheerness and Sheppy.

The larva supposed to feed on *Plantago maritima*. In the cabinets of Mr. Ingall,

Mr. S. Stevens, and others. It was first discovered by Mr. Ingall, in the Isle of Sheppy (Zool. 1863), and subsequently by Mr. S. Stevens, at Sheerness (Zool. 2857).

This insect a good deal resembles the European *Psyche undulella*, but Mr. Stainton, who has carefully compared it with the figure of that species, pronounces the two to be decidedly distinct.

EDWARD NEWMAN.

ART. V.—*Characters of undescribed Diptera in the British Museum.*

By FRANCIS WALKER, Esq., F.L.S.

(Continued from page lxxii).

TABANUS TRIPUNCTIFER, *fem.*

Niger, nigro-hirtus, capite albo, thorace fulvo pubescente, antennis pedibusque nigris, alis nigro-fuscis triguttatis apice cinereis.

Body black: head white, clothed with bright tawny hairs: crown partly black and clothed with black hairs: eyes pitchy: sucker and palpi black; palpi clothed towards the base with tawny down: feelers black; third joint slightly curved upward, very slightly convex beneath, armed above with a very short horn, which forms a right angle; compound joint slightly curved upward, very much shorter than the third joint: chest thickly clothed with tawny down: breast thickly clothed with black down: abdomen nearly linear, rounded at the tip, much longer than the chest, clothed with short black hairs, and towards the tip with short yellowish-white hairs: legs black, thickly clothed with short black hairs; foot-cushions tawny: wings blackish-brown; tips gray; a very small triangular colourless spot in the middle of the disk, and two more of an oblong shape near the base; curve of the tip cross-vein not angular; wing-ribs and veins black; poisers black, with pitchy tips. Length of the body 10 lines; of the wings 23 lines.

Port Natal.

TABANUS USTUS, *mas.*

Piceus, capite flavo, thorace vittis quinque fulvis ornato, abdomine ferrugineo apice piceo maculis trigonis fulvis ornato, antennis rufis basi nigris, pedibus ferrugineis, tarsis piceis, alis cinereis ad costam fuscis nervorum marginibus sub-fuscis.

Body pitchy: head covered with dull yellow, clothed with dull yellow hairs in front and beneath: eyes dark red, of very large facets; fore part and a border round the hind part black, composed of very small facets: sucker black: feelers red; first and second joints black; third curved upward, very slightly convex beneath, armed above with a very short horn, which forms an acute angle, and has a slightly concave outer side and a slightly convex inner side; compound joint curved upward, much shorter than the third joint: chest clothed with brown hairs, adorned with five dull tawny

stripes: breast tinged with gray, partly ferruginous, clothed with tawny hairs: abdomen ferruginous, obconical, very little longer than the chest, clothed with short black hairs, pitchy towards the tip; each segment adorned with a triangular tawny spot which rests on the hind border, and is clothed with tawny hairs; disk of the underside pitchy: legs ferruginous, clothed with short black hairs; feet pitchy; hips and claws black; foot-cushions tawny: wings gray, dark brown along the fore border, pale brown along the borders of the veins; wing-ribs and veins pitchy, the latter black towards the tips; curve of the tip cross-vein very near the base, not angular; poisers pitchy, with tawny tips. Length of the body 9 lines; of the wings 18 lines.

Port Natal.

TABANUS BREVIVITTA, mas.

Flavus, capite subtus albido, thoracis disco ferrugineo vittis duabus flavis ferrugineo maculatis ornato, antennis basi pedibusque fulvis, tarsis picis, alis limpidis fusco trimaculatis, ad costam flavo-fuscis.

Head yellow, yellowish-white and clothed with pale yellow hairs beneath: eyes bronze, of one colour, but forming, as usual, two regions: sucker black; palpi pale yellow, clothed with pale yellow hairs: first and second joints of the feelers tawny: chest ferruginous, adorned with two yellow stripes, on which are ferruginous spots; sides and breast pale yellow: abdomen obconical, tawny, nearly twice the length of the chest; fore borders of the segments and the whole of the three last segments ferruginous: legs tawny, clothed with short black hairs; shanks darker and more hairy than the thighs; feet pitchy: wings colourless, yellowish-brown along the fore border, each adorned with three irregular pale brown spots, which form an interrupted very oblique band; wing-ribs tawny; veins black, tawny at the base; curve of the tip cross-vein not angular; poisers tawny, with pale green tips. Length of the body 6 lines; of the wings 12 lines.

———?

CYPHOMYIA ORNATA, fem.

Purpureo-cyanea, capite flavo, antennis fulvis, pedibus picis, alis cinereis ad costam fuscis.

Body bright purplish-blue, clothed with very short hoary hairs: head bright yellow: eyes red; all the facets very small: feelers tawny; bristle black: legs pitchy; claws black; foot-cushions tawny: wings gray, dark brown beneath the fore borders; wing-ribs pitchy; veins black, very strongly marked; poisers pale yellow. Length of the body 4 lines; of the wings 8 lines.

Para.

SARGUS JUCUNDUS, mas.

Cyaneo-purpureus, capite subtus pectoreque fulvis, abdomine nigro basi subtus fulvo, antennis fulvis, pedibus flavis, femoribus posticis picis, alis cinereis fusco variis.

Head tawny in front and beneath: eyes pitchy; all the facets very small: feelers dark tawny; bristle black, very long and slender: chest bright purple, shining, tinged

with blue: breast tawny: abdomen black, tawny at the base beneath: legs pale yellow; hind thighs pitchy: wings gray, clothed with brown, which is darkest beneath the fore border at three-fourths of the length; wing-ribs pitchy; veins black, pitchy at the base. Length of the body 8 lines; of the wings 16 lines,

Para.

ANTHRAX BISTELLA,

Atra, nigro-hirta, metathoracis lateribus cano-hirtis, abdominis apice pilis albis bimaculato, alis limpidis basi et ad costam nigris.

Allied to *A. hyalacra* of Wiedemann. Body very deep black, clothed with short black hairs: eyes pitchy: feelers black: a tuft of hoary hairs on each side of the hind-chest: abdomen adorned with a tuft of silvery hairs on each side near the tip: legs black, long and slender, clothed with black hairs and bristles: wings colourless, black at the base, and thence along three-fourths of the fore border and one-third of the hind border; the outline of the black hue is concave and very oblique; wing-ribs, veins and poisers black. Length of the body 4 lines; of the wings 12 lines,

Para.

LEPIDOPHORA CULICIFORMIS, Mas.

Nigra, hirta, abdominis apice pilis piceis ornato, antennis pedibusque nigris, alis nigro-cinereis basi et ad costam nigro-fuscis.

Body quite black, clothed with black hairs: eyes pitchy, parted above by a moderate interval; all the facets very small: feelers nearly as long as the chest: neck and sides of the chest beset with black bristles: tip of the abdomen feathered on each side with pitchy plumes: legs black, beset with black bristles: wings dark gray, dark brown at the base and between the fore border and the disk till near the tips; wing-ribs and veins black; poisers black, with white tips. Length of the body 6 lines; of the wings 10 lines.

Para.

EXOPROSOPA BIZONA, Mas.

Nigra pilis rufis hirta, abdomine fasciculis duabus rufis maculis fasciisque duabus albo-pilosis, antennis pedibusque nigris, alis nigro-fuscis apice margineque postico cinereis.

Body black: head clothed with black hairs: eyes red: mouth and feelers black: chest and breast clothed with red hairs; scutcheon ferruginous: abdomen obconical, a little longer than the chest, clothed with black hairs which form a fringe on each side, adorned with a tuft of red hairs on each side of the base, with a round spot of white hairs on each side of the middle, and with two bands of white hairs at the tip: legs black, clothed with black down and bristles: wings blackish brown, dark gray at the tips and on the disks of some of the areolets along the hind border; wing-ribs and veins black. Length of the body $6\frac{1}{2}$ lines; of the wings 16 lines.

Para.

TRUPANEA PURPUREA, Fem.

Atra, pilis nigris hirta, scutello thoracisque lateribus piceis, abdomine purpureo segmentorum marginibus posticis fulvis, antennis nigris rufo-cinctis, pedibus piceis, tarsis fulvis, alis fuscis.

Body black, clothed with black hairs : a tawny line clothed with pale tawny hairs along the borders of the eyes ; epistoma convex, very thickly beset with black bristles : eyes bronzed ; fore part flat, its facets much larger than those elsewhere : sucker black, clothed at the tip with tawny hairs : palpi black, thickly beset with black bristles : feelers black ; first and second joints beset with black bristles ; second red, paler at the base : chest beset on each side and behind with black bristles ; scutcheon and sides of the chest pitchy : abdomen purple, shining, linear and clothed with black hairs towards the base, obconical and clothed with tawny hairs towards the tip ; hind borders of the segments dark tawny ; under side clothed with tawny hairs : legs pitchy, thickly clothed with black hairs and bristles ; feet tawny ; claws black, tawny at the base ; foot-cushions yellow ; wings brown, darker at the base and along part of the fore border ; wing-ribs pitchy ; veins ferruginous ; poisers tawny. Length of the body $6\frac{1}{2}$ lines ; of the wings 13 lines.

Para.

MALLOPHORA TRICOLOR, Mas.

Atra, nigro-hirta, capite pilis albis ornato, thorace rufo trivittato, abdominis medio fulvo apice rufo, antennis rufis basi nigris, pedibus nigris, tibiis tarsisque posticis flavis, alis limpidis.

Body black, clothed with black hairs : head with a ferruginous tinge, thickly clothed beneath with black and white hairs, having a white line along the eyes ; epistoma or front of the face convex, clothed towards the feelers with black hairs, and in front with longer and much more numerous pale yellow hairs : eyes black ; fore part flat, its facets much larger than those elsewhere : sucker black, clothed at the tip with tawny hairs : feelers red ; first and second joints beset with black bristles ; first joint black : neck tufted with black hairs : chest deep velvet-like black, adorned with three dark red stripes : breast tinged with brown : abdomen obconical, much narrower but hardly longer than the chest ; middle segments for one-third of the length tawny, with whitish hind borders, clothed with pale yellow hairs ; segments thence to the tip red, clothed with yellow hairs : legs black, clothed with black hairs, armed with black spines ; hind-shanks pale yellow, clothed with pale yellow hairs ; hind-feet darker yellow, beset beneath with short black bristles ; foot-cushions brown : wings colourless ; wing-ribs pitchy ; veins black, pitchy along the fore border ; poisers tawny. Length of the body 9 lines ; of the wings 18 lines.

Para.

MALLOPHORA ALBIFRONS, Fem.

Atra, nigro-hirta, capite pilis albis ornato, antennis pedibusque nigris, alis fuscis cyaneo nitentibus basi et ad costam nigris.

Body black, thickly clothed with black hairs : crown and face partly clothed with

white hairs ; a white line on each side of the face ; a tuft of white hairs in front of the eyes on each side of the mouth ; epistoma armed with black and white spines ; eyes black ; fore part nearly flat, its facets larger than those elsewhere : sucker black, clothed with tawny hairs : palpi black, very thickly beset with black bristles : feelers black : abdomen obconical towards the tip, longer and narrower than the chest : legs black, clothed with black hairs and bristles ; hind-legs, especially the shanks, deeply fringed with black hairs ; foot-cushions dark tawny : wings brown, adorned with blue reflections, blackish at the base and along part of the hind border ; wing-ribs, veins and poisers black. Length of the body 9 lines ; of the wings 22 lines.

South America.

FRANCIS WALKER.

ART. VI.—*Description of a second Lepidopterous Insect of the genus Psyche, recently discovered in Britain ; and proposed separation of a well-known European species under a new generic name.* By EDWARD NEWMAN.

PSYCHE FENELLA, Mas.

Antennæ dimidio corporis ferè longiores quasi 31-articulatæ, articulis 3—30 ramulos duobus ad apicem emittentibus ; alæ hyalinæ nitidæ pilis nigerrimis sparsis obsitæ ; corporis dorsum nigrum nitidum pilis undique nigris obsitum, abdominis lateribus apiceque testaceis. (Alarum latitudo .775 unc. Corporis longitudo .325 unc.)

Male. Antennæ somewhat more than half the length of the body, apparently 31-jointed : each of the joints, with the exception of the first, second and thirty-first, emits two branches from its apex ? ; these branches gradually decrease in length from the fifth or sixth pair to the last ; near the apex of the antennæ they are not only decidedly shorter than elsewhere, but also decidedly clavate ; in colour these branches are dark brown, almost black, and are clothed with hairs of the same colour ; the shaft of the antenna is distinctly and beautifully annulated, the basal ? portion of each joint being pale testaceous, and the apex ? emitting the branches, concolorous with the branches, or nearly black. Head black, almost concealed in long black hair which covers the base of the antennæ, and renders it difficult, if not impossible, to pronounce on the exact number of these joints : the eyes are intensely black. The entire dorsal surface of the thoracic and abdominal segments is shining and black, with the exception of a narrow band at the base and also the extreme apex of the abdomen : this shining surface is beset with long blackish hairs which are abundant on the sides, but more sparingly distributed down the middle : the abdominal segments beneath are black, very shining, and almost destitute of hairs along the middle, but at the sides they are testaceous and sprinkled over with black hairs. In the specimen described the fore and middle legs are wanting ; the hind legs are of moderate size, the femora and tibiæ black ; the tarsi paler ; the claws pitchy and widely divaricating. Wings transparent, colourless, sprinkled over with moderately long and very black hairs.

Female. Hitherto I have had no opportunity of examining this sex, but Mr. Doubleday informs me that it possesses legs and antennæ, characters in which it very decidedly differs from the apod scolicomorphous females of several ascertained species.

HAB.—The New Forest in Hampshire, where it was discovered in the larva state by Mr. Weaver, in the summer of 1848. The specimen described is in the matchless collection of Mr. Doubleday, to whom I am indebted for the loan of all the species I have mentioned.

This species may be immediately distinguished from those hitherto recorded as British, as well as from such continental species as invite comparison by their somewhat approximate size and multiarticulate antennæ. With the smaller species, which having fewer joints to the antennæ have been separated, and perhaps judiciously, under the name *Fumea*, it is not needful to institute a comparison. The undermentioned species may be advantageously compared.

1. *Penthophora nigricans* of Curtis, the connexion of which with Germar's genus *Penthophora* is by no means manifest: in his illustration of the genus I fear Mr. Curtis may have taken his anatomical details from *Penthophora* Morio, the insect he cites as the type, since I find no such palpus in the male of *Psyche nigricans*.
2. *Psyche Febretta* of Fonscolombe.
3. *Psyche calvella* of Ochsenheimer.
4. *Psyche graminella* of Fischer.
5. *Psyche Stettinensis*. *Fuscescens, concolor, thorace abdomineque pilosissimis; alis rotundatis, subæqualibus, hirsutis; abdomine subelongato pilis ad apicem trifariam directis.* (Alarum latitudo '65 unc. Corporis longitudo '33 unc.) This description of a male, in the cabinet of Mr. Doubleday, is added under the impression that the name has hitherto been unpublished.

From *Penthophora nigricans*, discovered by Mr. Dale in Dorsetshire, *Fenella* differs in its inferior size, in the entire absence of the thick mouse-coloured fur which clothes the body of that species: in its decidedly transparent and glittering wings; in their scattered black and not mouse-coloured hair, and in their wanting the transverse discoidal lunule, always more or less observable in *nigricans*. I am indebted to Mr. Doubleday for the loan of living larvæ of this species, and have availed myself of the interesting opportunity thus afforded of making very detailed drawings, as well as observations on their economy.

From *Psyche Febretta*, or *Febrettella* as it has latterly been denominated, the same differences distinguish it, indeed I believe that our British *nigricans* has been pronounced by Guénée, Becker, and other first-rate lepidopterists of the continent, to be identical with the continental *Febrettella*, a decision, which in the absence of specimens of the latter, I am unable either to confirm or gainsay: I may however observe, that in some characters, more especially the colour of the cilia, the British specimens do not agree very exactly with the continental figures.

From *Psyche calvella* it differs in the black, shining and far more robust body; in the colourless membrane of its wings, the membrane in that species, although semi-nude, being distinctly tinged with brown, and in the black and not brown hairs, sparingly scattered over them.

From *Psyche graminella* it differs in the absence of the lepidopterous clothing which in that species covers the wings. It is not a little remarkable, that in two insects so closely allied in their saccophorous larvæ and general economy, as well as in their apterous and apod females, should exhibit so great a discrepancy in what may be called an essential characteristic of the class to which both are supposed to belong: in *calvella* the wings only produce scattered hairs, greatly resembling those possessed by

many species of Phryganea, while in graminella they are completely covered with true lepidopterous scales, closely imbricated, and beautifully coloured with a coppery lustre.

From Psyche Stettinensis it differs in its entirely different habit, that species somewhat assimilating in figure to Hepialus; in its shining instead of opaque surface; in its black instead of fuscous hair.

Having alluded to the scales with which the wings of one species are covered, as well as some other characters not previously noticed, I will attempt to exhibit these in a synoptical or tabular form, premising however, that three questions still remain open to discussion, no one having, as far as I am aware, investigated either the mutual or general relations of these curious insects.

1. Are these insects Lepidopterous?
2. Are they Bombyces or Tineæ?
3. Are they related one to another, thus constituting a natural group?

Synopsis of Species mentioned.

A. Antennæ apparently 31-jointed.

a. Body robust as in the Bombyces = the genus Sterropteryx of Hübner, and also as I believe the genus Thyridopteryx of Stephens.

* Wings nude; body black; containing the species Ephemeræformis, described under the name of Sphinx Ephemeræformis by Haworth, *Lep. Brit.* 72, but subsequently proved by Mr. Gosse to be North American. See *Zool.* 537, where an interesting account of its economy is given by that gentleman.

* * Wings semi-nude; body black; containing the species Fenella described above.

* * * Wings hairy and concolorous with the body which is mouse-coloured; containing the species nigricans, which is the Pentophora nigricans of Curtis, *Brit. Ent.* Tab. 213; Febretta of Fonscolombe, *Ann. Ent. Soc. Fr.* iv. 107, Tab. 1, fig. 5; and Stettinensis described above.

b. Body slender as in the Geometræ.

* Wings densely clothed with glittering scales = the

Genus LEPIDOPSYCHE, Newman.

Which in addition to this very important character, is also distinguished by its ample and subequal wings; its great superficial resemblance to certain Geometræ; and its comparatively slender body; in which latter character, however, it agrees more nearly with the species which follow than with those which I have arranged before it: the only species with which I am acquainted is the Psyche graminella of Fischer, *Abbild. zur Berich. und Ergänz.*, p. 103, Tab. 41, fig. a—n., which appears to be generally distributed on the continent, and the occurrence of which in this country may be confidently anticipated.

* * Wings semi-nude without scales, but having a few scattered hairs = the genus Psyche of Schrank; containing the species calvella of

Ochsenheimer, *Schmet. Eur.* iii. 172, supposed to be identical with the fusca of Haworth, *Lep. Brit.* 157, both, as I am informed by Mr. Stephens, described in the same year, 1810.

B. Antennæ 13—18 jointed = the genus *Fumea* of Haworth.

- a. Wings concolorous; containing the species *nitidella* of Hübner, *Tin.* Tab. 1, fig. 6, and also *radiella* of Curtis, *Brit. Ent.* Tab. 332, which that author considers distinct from all the continental species figured by Hübner: this subject, however, requires further investigation.
- b. Wings reticulated; containing the species *undulella* of Fischer, *Abbild. zur Berich. und Ergaenz.* p. 86, Tab. 38, fig. 3, a—c, and *reticella* of Newman, *Zool. App.* xciv.

In conclusion I may state that these insects will well repay a more rigid investigation than we have hitherto vouchsafed them, not simply as regards specific differences and synonymy, although these points are quite worthy of further research, but more especially as regards the three questions proposed above, all of which are open to grave consideration. From the recently published 'List of British Lepidoptera,' by Mr. Doubleday, they are entirely omitted, with the view of including them amongst the Tineidæ: and Mr. Stainton has in like manner excluded them from his catalogue of Tineidæ, under the impression that they range more properly with the Bombyces. From the published lists of British Phryganidæ they are also absent, so that they may be said at the present moment to have no *locus standi* in British Entomology, and therefore we have arrived at a time when the proposed investigation has become desirable.

EDWARD NEWMAN.

ART. VII.—*Descriptions of new British Aphides.* BY FRANCIS WALKER, Esq.,
F.L.S., G.S., &c.

Aphides on the Groundsel (Senecio vulgaris).

The wingless viviparous female.—The body is oval, convex, pale grass-green: the antennæ are brown, pale green at the base, longer than the body: the eyes are dark brown; the rostrum is pale green, with a brown tip; the tubes are pale yellow, with brown tips, and nearly one-fourth of the length of the body: the legs are pale yellow, long and slender; the tarsi and the tips of the tibiæ are brown.

In the middle of May.

First variety. The body is pale yellowish green, smooth and shining: the antennæ are pale yellow; the tips of the terminal joints are darker: the rostrum is pale yellow; its tip and the eyes are black: the tubes have black tips, and are as long as one-fourth of the body: the tarsi are black.

The winged viviparous female.—While a pupa it is nearly elliptical, rather flat, dull whitish green, tinged with red and with darker green: the limbs are pale yellow; the antennæ have brown tips, and are more than half the length of the body: the tip of the rostrum and the eyes are black: the tubes have black tips, and are as long as

one-sixth of the body: the feet are black. The winged *Aphis* is black: the abdomen is dull yellowish green; most of its disk is black, and there is a row of black dots on each side: the antennæ are black, and longer than the body; the base of the third joint is pale yellow: the rostrum is pale yellow, with a black tip: the tubes are dull yellow, blackish here and there, and with black tips, and about one-fifth of the length of the body: the legs are yellow; the tarsi and the tips of the tibæ are black: the wings are colourless; the squamulæ and the costal veins are pale yellow; the stigmata and the other veins are pale brown.

At the end of September.

APHIS DIANTHI?

The wingless viviparous females.—Perhaps a variety of the preceding species. The body is oval, small, yellowish green: the head is nearly all yellow: the antennæ are yellow, with darker tips, and as long as the body: the rostrum is pale yellow; its tip and the eyes are black: the tubes are pale yellow, with black tips, and nearly one-third of the length of the body: the legs are pale yellow, and rather long; the tarsi and the tips of the tibæ are black.

Found at the end of September, near Newcastle, by Mr. Hardy.

APHIS APPOSITA.

The winged viviparous female.—The body is small, narrow, oval, convex, smooth, shining green, whitish towards the head: the antennæ are yellow, with black tips, and about half the length of the body: the legs are pale yellow, and of moderate length; the four hinder thighs are dull yellow; the knees, the tarsi, and the tips of the tibæ are black.

The winged viviparous female.—While a pupa it resembles the wingless insect in colour; the rudimentary wings are pale green.

At the end of September.

APHIS LATA.

The wingless viviparous female.—The body is small, convex, black, shining, nearly triangular, narrow in front, very broad behind: the sides are reddish: the under side is dark green: the antennæ are yellow with black tips, and shorter than the body: the rostrum is pale green with a black tip: the tubes are about one-fifth or one-sixth of the length of the body: the legs are yellow, and of moderate length; the tarsi, and the tips of the thighs and of the tibæ are black.

In the autumn, near Newcastle, by Mr. Hardy.

APHIS DIMINUTA.

The winged viviparous female.—The body is black, a little smaller than that of *A. Dianthi*: the abdomen is yellow from the base till near the middle: the antennæ are black, and much shorter than the body: the rostrum is pale yellow, with a black tip: the tubes are black, and about one-tenth of the length of the body: the legs are

pale yellow ; the tarsi, and the tips of the thighs and of the tibiæ are black : the wings are colourless ; the squamulæ and the costal veins are pale yellow ; the stigmata and the other veins are pale brown.

In the autumn.

Aphides on the Stinking Groundsel (Senecio viscosus).

APHIS DIANTHI ?

The winged viviparous female.—While a pupa it is pale red, slightly varied with green : the head and the prothorax are green : the antennæ are black, and nearly as long as the body : the tubes are dull green, with black tips, and more than one-fourth of the length of the body : the legs are dull yellow, and of moderate length ; the knees, the tarsi, and the tips of the tibiæ are black. The winged *Aphis* black : the antennæ are a little shorter than the body : the rostrum is pale towards the base : the tubes are about one-fifth of the length of the body : the thighs are yellow at the base ; the tibiæ excepting their tips are dark yellow ; the wings are colourless, and very much longer than the body ; the squamulæ and the costal veins are pale yellow ; the stigmata and the other veins are brown.

In the beginning of October, near Newcastle, by Mr. Hardy.

Aphides on the Ragwort (Senecio Jacobæa).

APHIS JACOBÆÆ.

The wingless viviparous female.—The body is reddish green, shining, and very globose, excepting the head and the prothorax, which peep out in front : the antennæ are brown, yellow at the base, and much shorter than the body : the rostrum is yellow, with a brown tip : the tubes are black, and as long as one-sixth of the body : the legs are dull yellow, and of moderate length ; the tarsi, and the tips of the tibiæ are brown.

First variety. The tips of the thighs are brown.

Second variety. The body is black.

The winged viviparous female.—While a pupa it is grass-green, shining, and nearly elliptical : the disk of the thorax is varied with black : the antennæ are brown, green at the base : the tubes are black : the legs are dull green ; the tarsi, and the tips of the tibiæ are brown. At the moment when the wings are unfolded the body is dark green, the antennæ and the legs are almost white, and the wings are milk white : it is afterwards black and shining : the rostrum is green, with a black tip : the legs are pale yellow ; the thighs, excepting the base, the tarsi, and the tips of the tibiæ, are black : the wings are colourless, and much longer than the body ; the squamulæ and the stigmata are yellow ; the veins are pale brown.

ART. VIII.—*Descriptions of Lepidopterous Insects of the genera Hypenodes, Eupithecia and Spilonota recently discovered in Britain.* By HENRY DOUBLEDAY, Esq.

Genus—HYPENODES, Guenée.

HYPENODES HUMIDALIS.

Alis fusco-cinereis, anticis strigis obliquis, maculâque centrali externe albo marginatâ nigris, palpis recurvatis. (Exp. Alar. 6 lin.).

Anterior wings pale fuscous, with a central black dot, externally margined with pure white; from this dot an oblique black striga passes to the inner edge of the wing, margined externally with white and internally with a fuscous cloud; a second striga extends obliquely from the apex of the wing to the inner margin, and between this and the central spot is a curved row of minute black dots extending from the costa to the striga just below the central spot. A row of black dots on the hinder margin of the wing; cilia pale fuscous; posterior wings uniform pale cinereous; palpi recurved.

HAB.—This singular little species, which will probably form a distinct genus, was captured by Mr. Weaver in the bogs of Ireland in 1848, and I then proposed the name of *Hibernicalis*, which has been adopted by M. Guenée; it appears, however, to have been previously taken by Mr. Hodgkinson, and has been discovered in abundance this season by my friends Messrs. N. Cooke and Greening, of Warrington: from this extension of the habitat my MS. name of *Hibernicalis* is clearly inappropriate.

Genus—EUPITHECIA, Curtis.

EUPITHECIA PALUSTRARIA.

Alis plumbeis, obsoletissimè strigatis, puncto albo ad angulum ani. (Exp. Alar. 7—9 lin.).

Anterior wings deep lead-colour, with very obsolete pale undulated strigæ most conspicuous towards the costa, and a distinct round white spot at the anal angle. Posterior wings plain lead-colour, with a small white dot at the anal angle; cilia spotted with fuscous and white.

HAB.—This insect appears to be common in the fens of Huntingdonshire.

This species, which does not appear to be known upon the continent, departs from the typical *Eupithecia* in form and habit; the wings are proportionably shorter; the thorax and abdomen stouter, and it flies by day, sporting in the sunshine in company with *Pyrausta cespitalis*, from which it is not easily distinguished on the wing.

EUPITHECIA CALLUNARIA (Stainton, MSS.)

Alis cinereis, albido undatis, anticis puncto oblongo medio atro. (Exp. Alar. 10—11 lin.).

Anterior wings cinereous, with numerous undulated pale strigæ, angulated towards the costa, one near the posterior margin being more distinct than the rest; a small oblong black spot near the centre; nervures with minute black dots; cilia cinereous; posterior wings cinereous, with obscure undulated strigæ.

HAB.—Common on the heaths of Scotland and the north of England. It is the

cinereata of 'Curtis's Guide,' but has not been described and the name cannot be retained, having been previously applied to species in allied genera. I believe it is unknown upon the continent.

Genus—SPILONOTA, *Curtis*.

SPILONOTA ROSÆCOLANA.

Alis anticis albis, fasciâ basi, nebulâ posticâ marginis tenuioris, apiceque fuscis; costâ obliquè albo nigroque strigatâ. (Exp. Alar. 8—9 lin.).

Anterior wings white, with a truncated deep fuscous fascia at the base: on the inner margin towards the anal angle is a cluster of lead-coloured spots, in which are three distinct black dots placed transversely, and between these and the hinder margin are two minute black dots in a pale space; apex of the wing fuscous: costa obliquely streaked with black and white; cilia fuscous; white at the anal angle; posterior wings and cilia pale fuscous.

HAB.—Feeds on the rose and is not uncommon in certain seasons, but appears to be more local than the two species mentioned below.

This species has been confounded with *Spilonota suffusana* and *S. Roborana*, but is very distinct; from the former it differs in its larger size and less suffused wings, and from both by the costa of the anterior wings being much rounded and regularly and obliquely strigated with black and white. Duponchel has figured this species as *suffusana*.

Genus—RETINIA, *Guenée*.

RETINIA PINICOLANA.

This species, described by Mr. Stephens and figured by Mr. Curtis under the name of *Turionana*, does not appear to be known upon the continent, or is confounded with *Buoliana*, from which it is certainly distinct. I have seen a great number of German specimens of *Buoliana*, but could not find a single *Pinicolana* among them. In England the two species seem equally common.

HENRY DOUBLEDAY.

Epping,
August 26, 1850.

ART. IX.—*Random Observations on the Psychidae in reference to Mr. Newman's Paper on that Family* (see ante, p. xcix.) By JAMES FRANCIS STEPHENS, Esq., F.L.S., Z.S., &c.

In Mr. Newman's lucid paper on *Psyche* he puts the following queries, viz.—

1. Are these insects Lepidopterous?
2. Are they Bombyces or Tineæ?
3. Are they related one to another, thus constituting a natural group?

First. In answer to this I would observe that the genus *Lepidopsyche*, and *Fumea nitidella* (which last in fine examples is densely clothed with glittering scales), appear

to fix the group strictly among the Lepidoptera, exclusively of the characters hereafter noticed.

Second. That they are Bombyces is evidenced by their rudimentary oral apparatus, which is in general so slightly developed in that group, especially among the typical species, as to become nearly obsolete in some of the gigantic ones; and the same deficiency of trophi serves likewise to detach them from the Tineæ, in which group they are typically so highly developed, even among some of the smaller species, as to exhibit all four palpi most distinctly, without the aid of a lens: and these parts are also in a high state of development in the Trichoptera; and therefore the Psychidæ cannot from their oral organs belong to that order.

Third. From our present knowledge of the contents of this group, it appears to me that they are related to each other: all their larvæ form moveable cots to reside in; and these cots differ in construction solely in accordance with the diversity of the genera; though I am not at this moment prepared to investigate into their mutual relationship. (I possess the "*Sacks*" of *Sterrhopterix nigricans* and *S. Fenella*; of *Thyridopterix*, which is doubtless American; of *Psyche fusca*, and of *Fumea radiella* and *F. nitidella*; all of which differ *generically only* in structure).

The fact of the larvæ being "Case-bearers," or "Sacktragers," does not militate against these insects belonging to the Bombyces, or rather to the larger group of Pomeridiana.* Among the Rhopalocera we have the larvæ of the Hesperidæ residing in contorted leaves, as also those of the genus *Ceratopacha* among the Nocturna; again the *Ægeridæ* among the Crepuscularia, *Cossus*, &c. among the Pomeridiana, *Gortyna*, *Nonagria*, &c. among the Nocturna; together with many genera among the Vespertina or Microlepidoptera, are all internal feeders: and among the Semidiurna the singular lacertine larvæ of the Platyptericidæ are to be found. Thus each large group is shown to contain minor groups whose larvæ are anomalous or aberrant, either in habits or structure.

The actual position of the Psychidæ in the Pomeridiana is debateable. The imago of some of the species closely resembles *Heterogynis Penella*, a Crepuscular insect, while others are so intimately connected with *Taleporia*, a genus of Tineæ, especially with *T. Tabulella*, *Guen.*, as to induce many naturalists to refer them to that group, but, as above shown, erroneously; this difficulty of location seems chiefly to arise from the triple affinities of the Psychidæ; i. e. to the Crepuscularia, to the Bombyces (or Pomeridiana) and to the Tineæ; and which may thus be rendered evident.

Heterogynis

.....

Psyche

Bombyx . . . *Tinea*

* *Oiketicus* must not be lost sight of.

or thus,

Heterogynis

.....

Psyche

Bombyx . . . *Tinea*

or again as Herrich-Schæffer has it,

Heterogynis

Psyche

Bombyx . . . *Tinea*

The above diagrams show, by means of the dotted lines of demarcation, how readily the Psychidæ may be referred to either of the groups in question without any real disturbance of their position. The first of these, so far as relates to *Psyche*, accords with my view of the subject, and apparently with that of my friend Stainton, as the second does with that of my friend H. Doubleday. I have, therefore, given them a corresponding *locus standi* in my forthcoming Catalogue of British Lepidoptera, now printing for the trustees of the British Museum. But as our native lists will not sufficiently exhibit their connexion (or indeed that of several other groups) with their allies, I may proceed to point out from the European catalogues some distant relationships, that appear to subsist between them and the Bombyces, more especially among the Arctiadæ. In one genus of this family (*Cycnia*) the wings are clothed with such very fine scales as to appear somewhat transparent; the male being remarkably Psychiform in habit. Again in another (*Trichosoma*) the females are nearly apterous, while in *Penthophora Morio* the wings of the female are considerably enlarged, but scarcely above half the size of those of the males; and in *Typhonia* (whose larva resides in a moveable cot) those of the female exceed those of the male, and the genus, which is truly Bombyciform, is placed among the Psychidæ of Boisduval, Duponchel, &c. Moreover, all the above insects are of sombre colours, like the Psychidæ. Furthermore, the genus *Nudaria* has the wings slightly clothed with scales, and the females of *Orgyia* are apterous, as they are likewise in *Heterogynis*, which has a naked larva, and in habit closely resembles *Procris*.

In the catalogue above alluded to, I have referred, with doubt, the *Psyche* *Febratta* of Fonscolombe to *P. nigricans*: this portion of the work was written long before I possessed the latter insect, or indeed before the female had been discovered, and

I neglected the opportunity of examining the point until after the article was printed. I now find, notwithstanding the opinions of Guenée, Becker, &c., that the two insects are evidently distinct: the male is totally different in form, the anterior wings are destitute of the conspicuous discoidal lunule, and the cilia are differently coloured: and the female is described as possessing, and is figured with, "les pattes courtes," which is not the case with the female of *nigricans*: moreover, *Febretta* appears in the perfect state at the end of August, whereas *nigricans* occurs in June.

As incidental to this subject, I shall conclude by noticing a circumstance that appears to have escaped the observation of modern entomologists, at least in this country, and showing that an apparently common insect still remains unknown. Towards the end of May last, in searching for the larvæ of *Psyche nitidella*, which abound in the neighbourhood of Camberwell, I observed on some old palings a quantity of oval green larva-cases, resembling small specimens of *Turbo littoralis*; they were in constant motion, which called my attention to them, and I secured several dozens in the hope of ascertaining the species to which they belonged; in this I was disappointed, for the whole of them changed about the middle of July, and proved to be the females of a new species (at least to us) of *Taleporia*? closely resembling, but not identical with *T. Tabulella*, before alluded to, and figured by Bruand in the 'Annales de la Soc. Ent. de France,' 2nd series, vol. ii. t. 6, f. E. under the name of *Solenobia clathrella*. The insect so closely resembles the figs. 17, 18 and 19, in Plate 15, vol. iii. of *Beaumur*, that I believe it to be identical, and propose to call it *T. Ferchaultella*, after one of that celebrated writer's names: it is, however, somewhat more attenuated posteriorly than in the figures, but that form might have escaped notice at the time they were executed. In colour the living insect was dull ochreous, annulated with brown; but in the dried specimens wholly of the latter colour, and the length of the largest specimen is scarcely two lines.

Bruand's figure of the male of his insect so nearly resembles a *Psyche* that it is difficult to distinguish it from one of that genus; and amongst my series of *Psyche nitidella*, taken at the spot where I found the larvæ of the insect now under consideration, I possess two remarkable and small specimens, evidently distinct from *nitidella*, and resembling the figure above referred to; so that in the absence of better information I am induced to assume them to be the males of *T. Ferchaultella*, a point I hope to clear up another season, and therefore remain silent for the present.

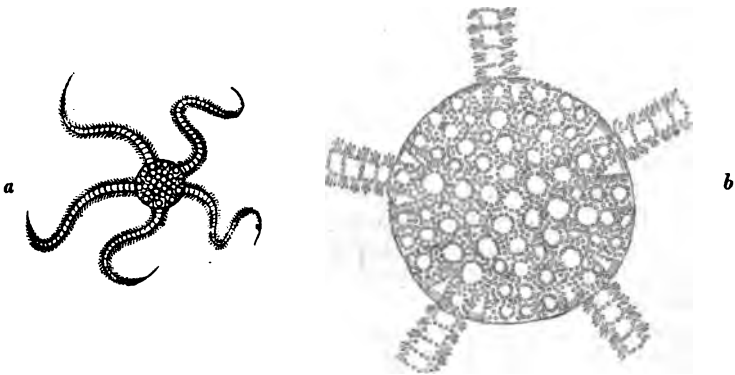
JAMES FRANCIS STEPHENS.

Eltham Cottage, Foxley Road, Brixton,
Sep. 11, 1850.

ART. X.—*Description of a New British Starfish of the genus Ophiocoma.* By the
Rev. JAMES SMITH.

I beg to send you a drawing and description of a species of *Ophiocoma*, taken in April of this year, off that fine promontory in the Moray Firth, which is known by the name of Gamrie Head. These have been communicated to me by the Rev. George Harris, assistant to Mr. Wilson, minister of Gamrie. Mr. Harris is one of the very

few individuals, in this part of the country, who amuse their leisure by the contemplation and the study of the works of creation. For certain branches of natural history, and especially for Ichthyology, for the Crustaceans, the Echinodermata, &c., the locality with which he is connected is unusually favourable. The coast along the whole parish is of a bold and most romantic character; and the sea in many places of a very great depth. Mr. Harris has lately devoted a good deal of his attention to what are commonly denominated starfishes; his text-book being Professor Forbes's beautiful publication on that branch of natural science. The species of which I now transmit you a drawing and description, he has been unable to identify with any of those which are figured in the work just mentioned; and on this account, I hope they will be deemed not unworthy of a place in the 'Zoologist.' The drawing, which is executed with great minuteness and delicacy, is from the pencil of Mrs. Wilson, and the scientific description has been drawn up from the specimen by Mr. Harris himself.



a. *Ophiocoma parmularia*, natural size.

b. Disk of the same magnified.

OPHIOCOMA PARMULARIA (Harris, MSS.)

Specific character. Disk round, convex, covered with small, circular, tuberculated scales, divided by a single or double row of minute granules, which also occupy the intermediate spaces: two triangular, slightly diverging scales on the sides of the insertion of each ray: upper ray scales transversely ovate, surrounded by a single row of minute granular plates: lateral ray plates bearing from two to four blunt, conical spinules, shorter than the breadth of the ray. All the scales are dotted with minute tubercles, which, however, are smallest on the scales of the rays: the granular plates which surround the upper ray scales are larger than those surrounding the scales of the disk. The disk measures full two-eighths of an inch in diameter; the rays are about four times that length. The scales of the disk radiate from a central one to the insertion of the rays, the third from the centre being usually the largest; those occupying the intermediate spaces also assume the same tendency, which is most distinct in the central line, as shown in the magnified drawing. The wedge-shaped scales at the insertion of each ray are tuberculated on the upper portion, but towards the margin are studded with granules (spinules?). The colour of these plates is white, and a few

plates of minor size, proceeding obliquely downwards from the external base angle, are also white, and show as a somewhat ill-defined irregular line. The plates on the under side of the ray are quadrangular, widening on the side towards the extremity of the ray, the two dilated corners or angles of which are rounded, producing an intermediate depression or arch, suggesting the appearance of a half-worn incisor tooth. The prevailing colour of these plates is white, but their lateral edges are of a delicate purple hue. A row of irregularly angular white plates connect the rays at their origin and surround the centre of the avenues.

Referring to Forbes's 'British Starfishes,' the *Ophiocoma* now figured and described seems to come nearest to *Ophiocoma bellis*, from which, however, it differs in having a circular disk; wedge-shaped scales at the insertion of each ray; and apparently a greater portion of the surface covered with scales, which are all, or nearly all, of a circular form; and in the absence also of a cordiform depression opposite the origin of each ray. It appears, moreover, to differ in colour, which, however, may not be a characteristic implicitly to be relied on. The colour of the disk is of a uniform purple; that of the rays is more of a variegated lilac.

JAMES SMITH.

Manse of Monquhitter, Aberdeenshire,
June 3, 1850.

ART. XI.—*Description of certain Longicorn Coleoptera from New Holland.*

By EDWARD NEWMAN.

Family ———

Genus—HEMESTHOCERA, Newman.

Caput parvum, porrectum, oculis reniformibus, haud prominentibus, apud antennarum insertionem excavatis; antennis corpore brevioribus, 11-articulatis, dimidio basali lanugine vestitis, apicali nudis: prothorax conicus, anticè truncatus posticè utrinque dente instructus: elytra brevia basi prothorace latiora, apice rotundata, dente præapicali utrinque instructa: propedes et mesopedes mediocres, metapedes longiores, femoribus omnibus extus tumidis.

HEMESTHOCERA FLAVILINEA.

Atra, puncta, scutella lanuginoso aureo; elytris bicarinatis, carinâ suturali flavâ, costali atrâ apice flavâ. (Corp. long. .6 unc. Elytrorum lat. max. .225 unc.)

The head is small in proportion to the size of the insect and porrected, its sides are nearly parallel, the eyes being so slightly prominent as scarcely to cause any excess in breadth, neither is there any material restriction behind the eyes; the epicranium is punctate; the eyes are reniform, the antennæ being placed in advance of their anterior excavation; the excavation itself is filled with a silvery pile, while all other parts

of the head are black, naked and shining: the antennæ when reversed scarcely reach the apex of the elytra, they are 11-jointed, the basal joint of a form very common among the longicorns, somewhat shorter than the head, moderately slender at the base, but much stouter at the apex, it is perfectly black and glabrous; the second, as usual, is very short, broader than long; the third and fifth are of equal length and each about equal to the first: the fourth is shorter and the sixth longer than either of these; the joints from the second to the sixth, both inclusive, are clothed with a thick, black, velvety down; the remainder, *viz.*, the seventh to the eleventh inclusive, are naked, slender, and decrease gradually in length; the seventh, eighth, ninth and tenth are silvery-gray, with a black apex; the eleventh is entirely black. The prothorax is longer than the head, its disk is somewhat depressed, deeply and irregularly punctate and perfectly black; its anterior margin is straight and in width exactly equal to the head; its posterior margin convex and much wider than the anterior; its lateral margins nearly straight but of course not parallel, and terminating posteriorly in a strong tooth. The mesothorax as seen behind the prothorax, together with its scutellum, is covered with a short golden down. The elytra at the base are considerably wider than the prothorax, and altogether wide in proportion to their length, still sufficiently long to conceal the abdomen; they gradually decrease in width towards the apex, where they are rounded but furnished with a small yet very obvious marginal tooth at some distance from their sutural extremity; besides the suture itself, which is somewhat keel-like and glabrous, each elytron has two glabrous discoidal keels, the first nearest the suture is very decided, it commences at the base and terminates near the apex, it is perfectly glabrous, impunctate, and of a bright yellow colour: the second commencing at the shoulder of the elytron and running parallel to the first, is glabrous, impunctate and black, a small apical portion alone excepted, which is yellow; the interstices between these keels as well as the space exterior to them is black, glabrous, and coarsely and deeply punctate. Beneath, the prothorax is punctate as above, it forms a truncate cone, no ridge or line of demarcation separating its dorsal and sternal surfaces; the metasternum is black and very polished, but more deeply punctate than the prosternum; anteriorly it is produced into a strong tooth-like projection, and on each side it has an amorphous pale-coloured patch of velvety down: the abdominal segments are black, brilliantly polished, and under a lens of moderate power appear to be impunctate; the terminal segment is exserted and truncate at the tip. The fore and middle legs are of average size and proportions; the hind legs are long, the tip of the abdomen not nearly reaching the extremity of their femora; all the femora are manifestly incrassated externally, and all the tibiæ have two spines at the apex.

Not having seen any insect very similar to the one now described, I have found some difficulty in deciding what characters are to be regarded as merely specific, and I feel much distrust as to the separation I have attempted of generic and specific definitions.

HAB.—North Australia: in the cabinet of Mr. Samuel Stevens, whose zeal and energy in importing exotic insects has already added so largely to our entomological knowledge.

Family ———

STENODERUS OSTEOCILLA.

Caput, prothorax, mesothorax, profemora, mesofemoraque glaberrima, latè testacea; oculi rotundi, antennæque nigra; metathorax, metafemora, tarsi omnes nigro-picea; abdomen subtus nigrum fulgore chalybeo splendidum; elytra 4-carinata, testacea, apicibus latè purpureo-nigris. (Corp. long. .5—.6 unc. Elytrorum lat. max. .125—.15 unc.)

The head, prothorax, mesothorax, profemora and mesofemora are smooth, very shining and bright testaceous; the eyes, which are round, and the antennæ are black and shining; the metathorax, metafemora and all the tarsi are pitchy black; the abdomen beneath is black but resplendent with a steel-blue lustre; the elytra are bright testaceous approaching to orange but without gloss, indeed they exhibit somewhat of a velvety surface, and have a broad apical band of black resplendent with a lovely metallic purple; this purple colour does not quite extend to the anterior margin of the black: each elytron has four raised longitudinal keels.

These insects are constant to two sizes, as designated above: the difference is probably sexual.

HAB.—North of New Holland. In Mr. S. Stevens's collection.

Family—PHORACANTHIDÆ.

Genus—SKELETODES, Newman.

Generi nostro Callirhoë nimis affinis, at corpore, antennis, oculis manifestè differt: gracilius; antennæ longiores articulis 3—5 spinâ apicali armatis, 3tiii spina mediocris, 4ti minor, 5ti minima; oculi 4, binis epicranii approximatis, minoribus, ovalis, binis genarum majoribus, subrotundis; prothorax latitudine duplè longior lateribus subparallelis, inermis; elytra lateribus parallela, dorso complanata, apice rotundata inermia; pedes longi femorum dimidio apicali incrassato.

SKELETODES TETROPS.

Fusca, testaceo varia, puncta; elytra basi, plagis discoidalibus obliquis, apiceque fusca; pedes testacei, metafemorum apicibus fuscis. (Corp. long. .425 unc. Elytrorum lat. max. .08 unc.)

Head prorected on the plane of the prothorax with which it exactly corresponds in width; antennæ as long as the body, beset with scattered long and short hairs; the third joint armed with a strong apical spine, the second with a smaller one, the third with a very small one, the remainder unarmed; each joint is dark at the base and apex, pale in the middle: the eye being completely divided at the base of the antennæ by a large scale or plate evidently connected with the antennæ, the insect becomes possessed of four distinct eyes, a character already noticed in Tassaromma, Astathes, and several other genera of longicorn Coleoptera; the upper or epicranial eyes are

seated on the crown of the head and are somewhat approximate, they are of an oval figure but are produced into something like an angle at their extero-posterior extremity, where their connexion with the lower eyes has been cut off by the scale or plate already described; the lower or cheek eyes are large, rounded and projecting, and also exhibit something like an angle at the nearest point of approach to the upper eyes: the colour of the head is testaceous, but a dark brown mark extends from each upper eye to the anterior margin of the prothorax: the length of the prothorax is equal to twice its width, and its width is almost exactly equal to that of the head: its figure is cylindrical and its sides parallel, and unarmed by spine, tooth or tubercle; its surface is rough and devoid of all gloss; its colour testaceous, with five blackish longitudinal vittæ, one of which is dorsal, broad, irregular, and encloses an oblong testaceous spot, the others are narrower and lateral; scutellum rounded, black: elytra rather wider than the prothorax, their sides nearly parallel, their apex rounded and unarmed; they are uniformly punctate, in colour nearly black with various testaceous markings, one of these occupies the humeral angle of each elytron, a second nearly joins this and passes in a zigzag direction towards the suture, emitting amorphous branches towards both extremities of the elytron; between this and the apex are three longitudinal marks on each, and of these that in the middle is widest and longest; beneath testaceous; the metasternum divided by a deep longitudinal groove; the legs, especially the metafemora, of rather more than average length; the exterior or apical half of all the femora greatly thickened, the thickened portion of the metafemora and the apices of the tibiæ brown, the rest of the legs testaceous.

HAB.—New Holland. In Mr. S. Stevens's collection.

Genus—PHORACANTHA, Newman.

PHORACANTHA IMPAVIDA, Mas.

Antennæ corpore valde longiores, articulis 3—5 apice 1-spinosis; prothorax dorso rugosus, lateribus dente mediano minuto armatus: elytra asperè ac profundè puncta, punctis apicem versus magnitudine pedetentim decreascentibus: color nigropiceus, nitidus; elytra testacea, maculâ utriusque basali, fasciâ medianâ undatâ, fasciâ postmedianâ plagam suturalem adjuvanti, nigerrimis. (Corp. long. 1·7 unc. Elytrorum lat. max. ·5 unc. Antennarum dilat. 5·5 unc.)

A large and striking species allied to *P. tricuspis* (Entom. 3) but differs not only in certain peculiarities of structure, but also superficially and strikingly in the distribution of colour on the elytra; of these the ground colour is testaceous, and the black or rather pitchy-black markings are thus disposed; the first is basal where it adjoins the prothorax, but not extending to the humeral angle; on each elytron it emits a central pointed limb or tooth directed towards the apex, and at the suture it is prolonged until it unites with a very conspicuous zigzag fascia common to both elytra, and which crosses them a little before the middle, forming a tolerably accurate letter N on each, that on the right elytron being reversed; below this zigzag fascia is a large oval sutural blotch, extending almost to the anal angle and emitting from its middle on each side a conspicuous ascending branch which just touches the costal margin; exterior to the prominent humeral angle at the base of the inflected costal margin of each elytron is an oblong black blotch.

HAB.—North of New Holland. In Mr. S. Stevens's collection.

Family—RHAGIOMORPHIDÆ.

Genus—TRITOCOSMIA, *Newman*.

Generi nostro Rhagiomorpha fortè nimis affinis at differt antennarum articulo 3tio fasciculo apicali ornato, femoribus brevioribus pedetentim tumidis.

Of this genus the first-described species, *Roei* of Mr. Hope, should doubtless stand at the head, that which I am about to notice being probably nothing more than a variety or a different sex. It should be observed that Mr. Hope's allocation of *T. Roei* under the genus *Stenoderus* appears scarcely warranted by its structure; *Stenoderus* has the eyes small and circular after the manner of certain *Lepturidæ*; *Tritocosmia* large and reniform after that of the major part of the *Cerambycidæ*; *Stenoderus* has the antennæ simple, *Tritocosmia* has the first joint elongate, externally incrassated, and the remainder attached at an angle or elbow; the third joint in *Stenoderus* is without ornament, in *Tritocosmia* it is furnished at the apex with a conspicuous tuft of black hairs: the structure of the prothorax is also decidedly different, that of *Tritocosmia* having a stout lateral tooth altogether wanting in *Stenoderus*.

TRITOCOSMIA ATRICILLA.

Nigra, elytris 4-carinatis, latè testaceis, apice nigris, scutello lanugine brevi nigerrimo dense obsito; profemoribus, mesofemoribusque latè testaceis, apicibus tantum nigris. (Corp. long. .9 unc. Elytrorum lat. max. .225 unc.)

HAB.—New Holland. In Mr. S. Stevens's collection.

Family—CERAMBYCIDÆ.

CERAMBYX? LATIVITTA.

Fuscus, elytris impunctis, obsoletissimè bicarinatis, vittâ latâ communi ante apicem desinente albidâ. (Corp. long. 1.1 unc. Elytrorum lat. max. .325 unc.)

Head and prothorax umber-brown and shining; head finely punctured, depressed between the bases of the antennæ, and impressed with a longitudinal furrow on the epicranium; antennæ moderately distant, seated on slight elevations, nearly as long as the body, 11-jointed, simple, slightly downy, and slightly hairy, the joints follow the normal relative proportion as regards length, the apical joint being sesquialterous: eyes large, prominent, notched in front at the base of the antennæ: prothorax slightly wider than the head, its lateral margin armed with a stout obtuse median tooth, an impressed line near and parallel to both its anterior and posterior margins, its disk distinctly but not strongly punctate: elytra wider than the prothorax, rounded at the shoulders, flattened dorsally, impunctate and having two indistinct ridges on each, rounded at the apex and entirely unarmed, umber-brown with the exception of a broad yellowish-white dorsal stripe or vitta common to both, this commences at the base, and is there as wide as the prothorax, but it decreases very gradually in width and ceases altogether before the apex; legs below the average size and length, simple, femora scarcely incrassated externally: under side ferruginous-brown.

HAB.—North Australia. In Mr. Stevens's collection.

CERAMBYX? SUBSERRATUS.

Fuscus, utroque elytro albido vittato: antennis brevioribus, subserratis. (Corp. long. 1 unc. Elytrorum lat. max. 3 unc.)

Antennæ rather more than half the length of the body, 11-jointed; the terminal joint longer than the rest and flattened, the preceding joints from the fourth to the eighth inclusive set on obliquely, and produced at the apex into a kind of tooth, which gives the antenna a serrated appearance; they are of a pale brown colour inclining to testaceous; the eyes are large and reniform, deeply notched to receive the base of the antennæ. The prothorax is rather broader than the head, rather longer than broad, and has parallel sides without armature; it exhibits no division into dorsal and sternal surfaces; it is very uneven, being pitted with large, deep, confluent punctures, except a small glabrous spot in the very centre of its dorsal surface. Elytra manifestly broader than the prothorax, flattened dorsally, with parallel sides, and each rounded at the internal apical angle; at the base they are impressed with large, deep, and often confluent punctures, but these become smaller and more distant before the middle, and in the lower half, which is highly polished, the punctures are small and distant; the colour of the elytra is clear brown, or dirty, semitestaceous white; the brown occupies the base, and is slightly prolonged on the costa, but is interrupted by the white rather before the middle; it then recommences, is continued to the apex, and returns along the suture to beyond the middle; the white occupies the remainder of each elytron. The meso- and metathorax have a lateral patch of whitish hairs. The legs are short, scarcely extending beyond the apex of the abdomen; they are of a pale brown like the antennæ, and, as well as the under surface generally, are sprinkled over with pale hairs: each segment of the abdomen has two small patches of pale hairs.

HAB.—The vicinity of Richmond or Clarence River, New Holland. In the collection of Mr. S. Stevens.

I look forward with considerable pleasure to the publication of something like a digest of the Australian Cerambycidæ; unless the task should fall into abler hands, I trust this may be accomplished during the approaching winter. I need scarcely say how much I should feel indebted to entomologists who will assist me with the loan of specimens, descriptions or figures, or who will refer me to specimens, descriptions or figures which they may not be able to lend: in the mean time I fear to create new genera in cases where an insect can possibly be referred to any already existing.

EDWARD NEWMAN.

ART. XII.—Description of a Pentamerous Coleopterous Insect from New Holland.

By EDWARD NEWMAN.

Stirps—PRIONOCERA.

Natural Order—MELYRITES?

Genus—AGASMA, Newman.

Caput exsertum, porrectum, oculis mediocribus, reniformibus, antennis filiformibus, corporis dimidio vix longioribus, 11-articulatis; prothorax obcordatus, postice truncatus; elytra prothorace latiora utroque 6-carinato.

AGASMA SEMICRUDUM.

Caput, prothorax, elytrorum dimidium basale, coxæ, pro- et mesofemora, metafemorum basis, pro- et mesotibiarum basis, pro- meso- et metasternum rufa: antennæ, oculi, plaga epicranii longitudinalis, elytrorum dimidium apicale, tarsi, pro- et mesotibiarum apex, metapedes omnino nigra: abdomen subtus chalybeum, apice profunde emarginatum. (Corp. long. .66 unc. Elytrorum lat. max. .18 unc.)

The clypeus and mandibles being rather long and prorected the head has a lengthened appearance anteriorly, it is distinctly exserted and slightly restricted behind, and has a very considerable resemblance to the head of several Lepturidæ, very particularly to that of *Rhamnusium Salicis*: the clypeus terminates in a straight anterior margin: the labium extends much beyond the clypeus, and is rounded in front with a scarcely observable median indentation; the mandibles are rather longer than the labrum, strong and hooked, each has a distinct but small tooth immediately before the apex, their inner margin is slightly dilated, membranous and transparent: all the palpi exhibit three distinct joints of about equal length, the maxipalpi being as a whole and also in their several parts considerably larger than the labipalpi; the apical joint in both is slightly incrassated externally, and is abruptly terminated in an obtuse point: the antennæ are rather distant at the base, about half the length of the body, and composed of eleven joints, which are of nearly uniform thickness, there being, however, a perceptible but very gradual attenuation towards the apex; the second joint is the shortest; the first and third are of about equal length, and each of the others very gradually increases in length towards the apex the last being longest: they are all perfectly black and clothed with very short black hairs, more especially about their apex; the eyes are rather small, strictly reniform, and situate behind but not very near the base of each antenna, they are perfectly black; the face and epicranium are somewhat depressed and flattened; on the epicranium is a conspicuous, black, longitudinal line extending in front between the eyes, and hidden behind by the anterior margin of the prothorax; all parts of the head unless otherwise specified are uniformly red. The prothorax is nearly equal in its extreme length and extreme breadth, but while the length is uniform, the anterior and posterior margin being straight, the breadth is various, the anterior portion of its lateral margins being dilated (but not attenuated as in some of the *Telephori*, &c., where it becomes almost membranous) convex, and wider than the head, and the posterior portion of the same margins restricted, concave, and narrower than the head; its disk is slightly uneven, and its colour uniformly red. The elytra are considerably wider than the prothorax; towards the apex they are somewhat narrowed, and at the apex conjointly but not severally rounded; they are convex dorsally, and each has six longitudinal and nearly equidistant ridges, one sutural, four discoidal and one costal; the first or sutural ridge commences immediately behind the scutellum and extends to the apex, the second and third commence at the base and cease in the apical area, the fourth commences below the humeral angle and ceases in the apical area, the fifth is completely lateral commencing very near but beneath the humeral angle, and ceasing in the apical area, the sixth is costal and continuous to the apex where it unites with the first; there is an indication of union among the four discoidal ridges at their distal extremity: the ridges as well as the interspaces are minutely punctured, and each

puncture appears to emit a short hair: the basal portion of the elytra scarcely amounting to half is red, and the remainder or distal portion black. The legs are simple, all their parts being of normal size and proportions, the femora are not incrassated, the tibiæ are entire and have two spines at their apex: the tarsi are five-jointed, slightly dilated and hairy; the basal joint is considerably longer than the rest, the second slightly excavated externally, the third more excavated, almost notched, the fourth very deeply notched, or rather divided into two large, rounded, flattened lobes, the fifth is slender and somewhat cylindrical, terminating in two widely divaricating, hooked claws, which are destitute of serratures or teeth: in general appearance the tarsi very much resemble those of a *Lamia*, with this notable distinction, that the bilobed joint is numerically different, in *Agasma* being the fourth, in *Lamia* the third; all the coxæ are red; the pro- and mesofemora are red; the basal half of the protibiæ and the basal portion of the mesotibiæ are red; all other parts of the legs are black; each pair of legs is closely approximate at its base, the hind pair the least so. The abdomen is steel-blue beneath, shining and minutely punctured, the terminal segment is completely divided longitudinally, and the penultimate segment deeply notched.

HAB.—Vicinity of Richmond or Clarence River, north-east of New Holland: in the collection of Mr. S. Stevens.

I confess to feeling considerable difficulty as to fixing the natural order to which this insect belongs. Taking into consideration its general habit, and figure, the structure of head and antennæ, its carinated elytra, and the country whence it has been imported, the mind seems naturally inclined to refer it to such longicorn groups as the *Tropides*, *Rhagiomorphæ* and *Stenoderi*, an inclination much encouraged by its extreme superficial resemblance to *Rhamnusium Salicis*, a well-known Lepturidous longicorn of the old continent. This idea, however, must be at once banished on an examination of its truly pentamerous tarsi, and although the metatarsi are absent, and therefore may by *possibility* have been tetramerous, and the insect thus a member of the great heteromerous group, which I have called *Hormocera*, yet every *probability* is against such a conclusion, since the structure of those tarsi which are present indicates as clearly the structure of those which are absent, as the head and mouth of a *Tabanus* proclaim that it belonged to a Dipterous insect. The structure of the antennæ forbids our placing this insect among the schismatocerous and cordylocerous Pentamera, and the entire protibiæ separate it from the Nematocera: so that our field of enquiry is limited to the Prionocera, and its distant antennæ, and the characters of its instrumenta cibaria are more accordant with the Melyrites than with any other of that diversified stirps. Still I rather suggest than insist on this location, and shall be very glad to hear, and if possible to embrace, the views of those entomologists who may hereafter give this interesting insect a more rigid investigation.

EDWARD NEWMAN.

ART. XIII.—*Descriptions of Three Coleopterous Insects from New Zealand.*

By EDWARD NEWMAN.

Natural Order—CLERITES.

Genus—CLERUS, *Fabricius, haud Auct. hodie.*

CLERUS? HILARIS.

Nitidus, sparsim hispidus, capite, antennis, prothorace, scutello, pedibusque nigris; elytris basi latè miniatis, deinde purpureo-nigris utriusque maculâ apicali miniata; metasterno abdomineque subtus rufis hujus apice nigro. (Corp. long. .21 unc. Elytrorum lat. max. .08 unc.)

Head, antennæ, prothorax, scutellum and legs black, with a slight purple reflection; head with two punctate foveæ between the eyes; prothorax somewhat obcordate, impressed by a deep transverse groove before and behind: the basal portion of the elytra, nearly amounting to half their length, is a brilliant coral red; the apical portion, somewhat exceeding half, is a beautiful metallic black, with occasional purple reflections, and enclosing at the apex a coral-red spot, which is not divided on the suture when the elytra are perfectly closed, but then has an elongate reniform figure, the notch facing the anus: the metasternum is red, the metacoxæ and trochanters being black: the abdomen is red, with a black apex.

HAB.—New Zealand. In the collection of Mr. S. Stevens.

Natural Order—CERAMBYCITES.

Family—CALLIDIIDÆ.

Genus—CLYTUS, *Fabricius.*

CLYTUS SPINICORNIS.

Caput nigrum, antennis basi nigro-piceis apice testaceis, articulis 3tio 4toque apice 1-spinosis: prothorax latè fulvus: elytra nigra, utriusque lunulâ fasciâ maculâque apicali cinereis: pedes nigri. (Corp. long. .45 unc. Elytrorum lat. max. .11 unc.)

Head small, black, with a slight and very short gray velvety pile on the epinotium; antennæ pitchy at the base, testaceous at the apex, the third and fourth joints having a strong apical black spine: prothorax longer than broad, convex laterally, and of a bright fulvous-orange colour; this colour occupies the whole of the dorsal and lateral surfaces, leaving a narrow prosternum black, yet partially clothed with a very short gray pile: elytra black, with three gray marks on each; the first of these is a lunule placed obliquely, its concavity facing the humeral angle, and its anterior limb touching the suture; the second is the half of a common fascia, its widest diameter touching the suture, its narrowest diameter approaching but not reaching the costa; the third occupies the apical area; the elytra are truncated at the apex: mesosternum gray: abdomen black beneath, with a central gray fascia: legs black;

Description of an Agrion.

metafemora simple, but very long, extending considerably beyond the abdomen, the apex of which is not covered by the elytra.

HAB.—New Zealand. In Mr. S. Stevens's collection.

Not an uncommon type of Clytus: the Rev. F. W. Hope has described a very similar species from India, under the name of *C. bicinctus*.

Family—SAPERDIDÆ.

Genus—SAPERDA, Fabricius.

SAPERDA BILABILIS.

Fulva; antennis nigris, cinereo cinctis; oculis, capitis lateribus, prothoracis plagâ longitudinali medianâ, scutello, elytrorum maculâ utriusque humerali alterâque præapicali nigerrimis. (Corp. long. .4 unc. Elytrorum lat. maz. .1 unc.)

Head, prothorax and elytra fulvous; antennæ black, annulated with gray; eyes black, and united with a large black patch which extends to the anterior margin of the prothorax, occupying the entire side of the head, and reducing the fulvous on the epicranium to a mere vitta: prothorax with a median black vitta: each elytron has a small shining black spot at the humeral angle, and a larger oblong black spot in the apical area: metasternum fulvous, the other parts beneath grayish: legs black, very short.

HAB.—New Zealand. In Mr. S. Stevens's collection.

ART. XIV.—Description of an Agrion from the Interior of South America.

By EDWARD NEWMAN.

Natural Order—LIBELLULITES.

Genus—MECISTOGASTER, Rambur.

MECISTOGASTER ANCILLA.

Nigrum, subtus albidum; alis hyalinis, anticis apicem versus fuscescentibus apice ipso latè fulvo. (Corp. long. 3.75 unc. Alarum dilat. 4.75 unc.)

The entire upper surface of the thoracical and abdominal segments is black, with the slightest possible metallic tinge; the lateral margins of the prothorax are white, and there are two white oblique lines on each side of the mesothorax, the upper narrow, the lower broader and terminating in the mesocoxæ, the metasternum and the lateral and under surfaces of the abdomen are white as also are the tarsi, the other parts of the legs being black: the anterior wings are transparent and colourless except the tip, where they are stained with a smoky hue, which becomes gradually deeper until it reaches a beautiful opaque fulvous patch of a somewhat oval figure, which completely occupies the apex: the nervures of the wing before reaching this fulvous patch become much more numerous, and within the patch are so numerous and crowded as to occupy almost the entire surface of the wing, the cells being only perceptible under a lens of high power, and then merely as points less opaque than the rest of the wing: the posterior wings are hyaline and colourless.

HAB.—Ega, Upper Amazons, whence several specimens have been sent home by Mr. Bates, now engaged in forming entomological collections in that rich country. To the untiring energy of this able naturalist we are indebted for vast and almost incalculable additions to our knowledge of the insect Fauna of the South American Continent. Mr. Bates is continually transmitting the proceeds of his labours to Mr. S. Stevens, of 24, Bloomsbury Street; and as the prosecution of his researches must very much depend on the success of Mr. Stevens in disposing of these collections, I venture to express a sincere hope that those entomologists who possess the power of doing so, will lend their pecuniary assistance to Mr. Bates, by becoming purchasers of his captures, and thus furnish him with the means of continuing and extending his invaluable researches. I must not allow this appeal to go forth, without distinctly stating that it is perfectly spontaneous on my part, and altogether unsolicited either by Mr. Stevens or Mr. Bates; but that it is not otherwise than a necessary one, may be seen by a reference to Mr. Bates' own observations at p. 2966 of the present number. I should also add, that when I mention an insect as in the collection of Mr. Stevens, I wish it to be understood as intimating merely that it is consigned to that gentleman's care, and is to be obtained on application.

EDWARD NEWMAN.

ART. XV.—*Characters of Undescribed Diptera in the British Museum.*

By FRANCIS WALKER, Esq., F.L.S.

TABANUS CONSEQUA, Fem.

Fulvis, capite albo, thoracis disco fusco pectore cano, abdomine vittis duabus fulvo-piceis ornato, antennis rufis, pedibus fulvis, tarsis pedibusque anticis nigris, tibiis anticis basi albis, alis subcinereis, basi et ad costam subfulvis.

Body tawny: head white and clothed with white hairs beneath; a club-shaped, pitchy, shining mark between the eyes, which are bronzed and parted by a moderately broad interval: sucker black; lancets ferruginous; palpi pale yellow, clothed with very short black hairs: feelers pale red; first and second joints beset with black hairs; third slightly convex beneath, forming above a very shallow and obtuse angle, which is clothed with a few very short black hairs; compound joint very slightly curved upward, much shorter than the third joint: chest pale brown, clothed with short golden hairs; sides tawny, beset with a few black bristles; breast hoary, clothed with white hairs: abdomen pale tawny, much longer than the chest, hardly decreasing in breadth from the base to the tip, which is rounded, adorned with two stripes, which are dark tawny on the fore part and pitchy towards the tip, the whole of which is occupied by their union: legs tawny, clothed with pale tawny and very short black hairs, the latter form a fringe on the shanks and are most numerous at the tips, but abound still more on the feet; feet black, pitchy at the base; foot-cushions dark tawny; fore-legs black; shanks white towards the base: wings pale gray, with a slight tawny tinge towards the base and along the fore border as far as the brand, which is pale brown; wing-ribs tawny; veins black, tawny towards the base; tip

cross-vein forming a distinct obtuse angle, which has a very short and sometimes obsolete stump; poisers tawny. Length of the body $4\frac{1}{2}$ lines; of the wings 9 lines.

HAB.—Parà.

DICHELACERA HINNULUS, Fem.

Fulva, antennis fulvis apice nigris, pedibus fulvis, tibiis posticis apice tarsis anticis posticisque piccis, alis limpidis apice cinereis costa villaque fulvis.

Body tawny, clothed with golden hairs: head adorned with a pale tawny covering, clothed beneath with yellow hairs; a large, pitchy, shining, square spot in front of the crown: eyes bronzed; all the facets very small: sucker black: lancets and palpi tawny: feelers tawny; first and second joints beset with black hairs; third joint black towards its tip, its horn curved downward, and a little longer than the other part; compound joint black, curved upward, a little shorter than the third joint, like which it is clothed with very short black hairs: abdomen obconical, much longer than the chest: legs tawny, clothed with short tawny hairs; hind-shanks dark tawny, pitchy towards the tips, clothed with short black hairs; fore-shanks and middle feet darker towards the tips; fore-feet and hind-feet pitchy: wings colourless, gray towards the tips, tawny along the fore border as far as the stigma, which is brown; a tawny streak extends from the base and joins the hind border before half the length of the latter; wing-ribs tawny; veins pitchy, tawny towards the base and along the fore border; poisers tawny. Length of the body $3\frac{1}{2}$ lines; of the wings $8\frac{1}{2}$ lines.

HAB.—Parà.

FRANCIS WALKER.

ART. XVI.—Description of an apparently new Lepidopterous Insect, of the Family *Glaucopidæ*, from the Upper Amazons. By EDWARD NEWMAN.

Family—GLAUCOPIDÆ.

Genus—MYRMECOPSIS, Newman.

Formicam alatam exactè simulat: antennæ dimidio corporis vix longiores, dimidio basali bipectinatae, deinde serratae, denique subserratae, apice gracillimæ setacæ: alarum anticarum cellula discoidalis profundè divisa; alæ nudæ, squamis nisi nervurarum nullo modo indutæ: abdomen petiolatum petiolo valdè restricto.

MYRMECOPSIS EUMENIDES.

Nigra; alæ nudæ hyalinae, anticarum vittâ latâ costali fuliginèâ maculam stigma-toidem pulcherrimè chalybeam includenti; pedes nigri, tarris testaceis. (Corp. long. .6 unc. Alarum dilat. 1.15 unc.)

The superficial resemblance of this moth to a Hymenopterous insect is perfect: the extremely narrow petiole divides the body into two nearly equal parts, one composed of the head and alary segments, the other of the abdominal segments: the head

is of moderate size; the eyes scarcely prominent; the labipalpi short, somewhat divaricating, and their terminal joint somewhat obtuse: the antennæ are about as long as the head and alary segments taken together; they are finely bipectinate, the ramuli commencing at the base, and continuing beyond the middle, gradually diminish to mere serratures and finally cease, the apex of the antennæ becoming simply setaceous. As in petiolate Hymenoptera, the thoracic mass is composed of four segments, the pro-, meso- and metathorax and the propodeon; the prothorax is a mere ring, but is clearly defined by the presence of a fringe of scales; the mesothorax is destitute of scales and very shining; the tippets are clothed with scales, long and pointed; the metathorax is smaller, and equally destitute of scales; the propodeon is nearly quadrate, and somewhat produced at its posterior angles, but this character is not so decided in the insect under consideration as in many Glaucopidæ, in which the abdomen is somewhat though less decidedly petiolate; the podoon or peduncle is much constricted and somewhat funnel-shaped, its smaller extremity fitting into the aperture of the propodeon, and its larger or dilated extremity receiving the next succeeding segment, which is greatly incrassated, and with those which follow constitute an ovate mass, which seen in profile is highly convex above, and owing to the peculiar angle of the podoon, appear somewhat concave below. The fore-wings are moderately long and rounded at the extremity; the discoidal areolet extends about half their length, and there terminates in two acute points, caused by the angle of the transverse or stigmatic nervure by which it is closed; from each point of the discoidal cell spring two nervures, the first of the upper pair is divided at half its length, the upper branch reaching the marginal vein just before the apex, and the lower at the apex, the other three nervures are undivided, and together with the other two which originate in the lower margin of the discoidal cell, reach the outer margin of the wing at nearly uniform distances: the upper wings are transparent and colourless, with the exception of a broad smoke-coloured vitta which commences on the costa at about three-fourths of its length, gradually widens to near the base, and there crosses the wing in an oblique direction to the inferior margin, leaving a small colourless area at the extreme base of the wing; this vitta, like the rest of the wing, is destitute of scales, and owes its presence to the colouring of the membrane of the wing: the angled transverse nervure, which closes the discoidal areolet, is fringed with scales, and these, in certain lights, exhibit a lovely metallic blue colour: the hind-wings are small; they have a single three-branched nervure springing from the base, the first division takes place at about one-fourth of its length, the upper branch proceeding in an arcuate direction to the outer margin, the second division takes place at rather more than half its length, and runs to the margin in a less curve than the first, and the third, which is very short, runs in a direct course; an extremely slender nervure springs from the outer margin between the first and second of these branches and runs into the angle, where they separate: the legs are simple, and without that dense clothing of scales which occurs in some of this family: the metatibiae have two spines at about two-thirds of their length, and two more at their extremity: the legs are black, with the exception of the tarsi, which are testaceous.

HAB.—Ega, Upper Amazons: taken by Mr. H. W. Bates. In the cabinet of Mr. Saunders, to whom I am indebted for the loan of specimens.

EDWARD NEWMAN.

ART. XVII.—Description of two Coleopterous Insects from New Holland.

By EDWARD NEWMAN.

Natural Order—PSEUDOMORPHITES.

Genus—SILPHOMORPHA, Westwood.

SILPHOMORPHA ALBOPICTA.

Nigra, prothoracis elytrorumque marginibus semihyalinis, ferrugineis, utriusque elytri maculâ magnâ subquadratâ albidâ. (Corp. long. .5 unc. Elytrorum lat. max. .25 unc.)

A very depressed scale-like insect. Head black, minutely punctured, an oblong fovea on each side in front of the eye: prothorax black, its lateral margin dilated, slightly diaphanous and broadly ferruginous, its anterior margin deeply excavated to receive the head, and also deeply notched on each side behind the eye: elytra black, with a dilated, recurved, semitransparent, ferruginous costal margin; each has a large yellowish-white patch on the anterior part of its disk; this is somewhat lozenge-shaped, but without angles.

HAB.—Adelaide, South Australia, taken by Mr. Wilson, and in Mr. S. Stevens's collection.

Natural Order—CERAMBYCITES.

Genus—PHACODES, Newman.

PHACODES MOSSMANNI.

Fusca, viridi tineta; elytra fasciâ medianâ maculisque incertis, lanuginosis, canis, ornata. (Corp. long. .9 unc. Elytrorum lat. max. .3 unc.)

Antennæ of the male much longer than the body, and the joints long and slender; of the female scarcely so long as the body; in both sexes gray, with the exception of the apices of the third, fourth, fifth, and sixth joints, which are black and shining: prothorax dull gray, with two fulvous, discoidal, abbreviated vittæ, each of which includes, at its anterior extremity, a glabrous, black tubercle, and at its posterior extremity a somewhat triangular, black, glabrous spot; centrally as regards these four black marks is a fifth, elongate, attenuate at both ends, elevated and glabrous: elytra brown, with a tinge of green, and variegated with downy markings and glabrous pustules; the downy markings are generally gray, but on each elytron certain of them assume the form of an oblique, somewhat vague white fascia about the middle.

HAB.—South Australia, found in a wood-hut by Mr. Mossmann, who has consigned several very beautiful specimens of this species, together with many other interesting Australian insects, to the care of Mr. S. Stevens.

EDWARD NEWMAN.

